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3
X POSSIBLE METHODS OF IMPROVING
THE FEED-GRAIN PROGRAM

REPORT

FROM THE

ACTING SECRETARY OF AGRICULTURE

PURSUANT TO

S. Res. 125

OF THE

EIGHTY-FIFTH CONGRESS

FIRST SESSION



PRESENTED BY MR. ELLENDER

50
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S. Res. 168

IN THE SENATE OF THE UNITED STATES,
AUGUST 5. (LEGISLATIVE DAY, JULY 8), 1957.

Resolved, That there be printed as a Senate document the report from the Acting Secretary of Agriculture on possible methods of improving the feed-grain program, pursuant to Senate Resolution 125, Eighty-fifth Congress, first session, and that two thousand five hundred copies be printed for the use of the Senate Committee on Agriculture and Forestry.

Attest:

FELTON M. JOHNSTON,
Secretary.

By: EMERY L. FRAZIER,
Chief Clerk.

LETTER OF TRANSMITTAL

DEPARTMENT OF AGRICULTURE,
Washington, D. C., July 15, 1957.

The PRESIDENT OF THE SENATE,
United States Senate.

DEAR MR. PRESIDENT: Enclosed, pursuant to Senate Resolution 125, is a report on the study of possible methods of improving the feed grain program.

Sincerely yours,

TRUE D. MORSE,
Acting Secretary.

III

PREFACE

This report was prepared pursuant to Senate Resolution 125, 85th Congress, 1st session, approved May 2, 1957:

That the Secretary of Agriculture is requested to conduct a thorough study of possible methods of improving the feed grain program which can be effective, as far as possible, with the 1958 crop, and to report thereon with specific recommendations, including drafts of any legislation considered necessary to carry out such recommendations, not later than July 15, 1957.

This report was prepared by a work group representing the several agencies of the Department of Agriculture having responsibilities that relate to the subject of the study. Time did not permit the securing of written comments and suggestions of farm organizations, agricultural colleges, and other agricultural agencies.

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POSSIBLE METHODS OF IMPROVING THE FEED-GRAIN PROGRAM

I. SUMMARY

The four feed grains—corn, oats, barley and sorghum grains—and the livestock products for which they are a raw material are first among sources of income to agriculture. They provided 60 percent of total cash receipts to farmers from marketings of commodities in 1956.

Because feed crops and livestock are so large a part of the total farm economy, policies with respect to them cannot be considered in isolation. When, with acreages of export crops under controls, surplus resources appear in feed production, there are few other crops to which those resources can be shifted. They then become an indicator of surplus resources in all of agriculture. Since this is true, the inter-commodity aspects of price support policies merit attention when feed grain policies are considered.

Consumer demand for livestock products increased rapidly after the end of World War II, encouraging expansion of feed and livestock production. By 1956, output of livestock products was 21 percent above the 1946-50 average. This increase exceeded population growth, and consumption per person was up 6 percent. New highs in consumption were recorded last year for both meat and poultry. This great volume was attained even while 4 percent of feed grain production was being added to carryover stocks. At the same time, sizable quantities of dairy products and smaller quantities of some other livestock products were diverted from the market through Government purchase.

As the growth in demand for livestock products slowed and marketing margins widened, prices received by farmers for feed grains and livestock declined from levels attained during the Korean conflict. Feed grain prices have dropped a fifth since the early 1950's, livestock prices a third.

Production of livestock products has increased over several decades despite a downtrend in acreage of feed grains. Larger output has been made possible chiefly by sharply rising yields of feed crops per acre, especially of corn, and by decreases in numbers of horses and mules. The acreage of corn has declined steadily from 1932 to 1957. Most of the reduction since the 1930's has taken place in the South. The acreage of the other three feed grains (oats, barley and grain sorghums) was almost steady until 1954. In that year it increased by 14 million acres, or more than 20 percent. Almost the sole cause was diversion of acres from wheat and cotton, on which acreage allotments and marketing quotas were reimposed in that year. Although because of drought and the soil bank the increase was less in 1956, a

large part of the enlargement in feed grain output since 1953 must be ascribed to the wheat and cotton programs.

As one consequence of planting of diverted and "slack" acres to feed grains, the acreage allotment for corn in 1957 is considerably smaller, and the minimum support price lower, than each would be if added feed grain supplies had not displaced corn in consumption and forced it into CCC stocks. Because of small allotments and a limited interest in corn programs by producers who feed their own corn to livestock, the corn allotment has not been very successful in recent years in restricting production.

Requirements for livestock products and feed grains will increase materially in decades ahead. By 1975 total needs for livestock products may range from 45 to 60 percent above 1951-55. Requirements for feedstuffs might be up a little less, possibly around 40 to 50 percent, because technological progress in feeding is likely to reduce feed needs per unit of livestock output.

Continued advances in technology are expected in feed production also, and they will probably make it possible for anticipated requirements for feed to be met. Occasionally, periods of surplus might reappear. Although estimates of future needs are inexact and actual production will depend on many factors, including the extent of resources to be devoted to agriculture, no clear gap of deficiency between needs and capacity to meet them is in view.

Long-range objectives of a feed grain program implicitly involve conflicting goals that must be reconciled. The interests of both consumers and producers are to be served. Expanded output is desired, but as prices and incomes to producers that compare with incomes of other persons performing equal services. The Government can assist materially, but should not introduce rigidities to seriously impede desirable adjustments within agriculture or hinder optimum use of resources.

Several alternative proposals as to a feed grain program are explored in this report.¹ These are:

- (a) Current program.
- (b) Acreage allotments and mandatory price supports for all feed grains.
- (c) No allotments and moderate price support for all feed grains.
- (d) No allotments and no support.
- (e) Fixed-share base-payment program.
- (f) Other programs, in the categories of land use, Government-assisted price insurance, and Government assistance in developing new or expanded domestic and export markets for feed grains.

The current programs of acreage allotments for corn and price supports for all feed grains are designed to maintain prices and incomes of feed grain and livestock producers by means of support prices at levels higher than would prevail under free market conditions. Acreage allotments on corn are provided in order to restrict production as necessary and prevent excessive buildup of stocks. Primary disadvantages are that the higher support prices stimulate use of resources other than land, thereby speeding technological increases in

¹ It is assumed for this study that current programs of price support for commodities other than the feed grains would be continued; the soil bank also would continue as provided by present law. In some cases, however, modifications of the soil bank are introduced into specific proposals for feed-grain programs. The assumptions are listed on p. 38.

yields; and that acreage controls on corn are not very effective. It is possible that if the present program were continued to 1962, production and consumption of feed grains would be more nearly in balance than now but probably not entirely so, with carryovers large and support prices on corn near their minimum.

A program that established a total acreage allotment for all feed grains, compliance with which would be requisite for price support, would reduce production below what it would be in the current program. This would result because farmers would find it more attractive to comply with a total feed grain allotment than with a corn allotment alone. Corn allotments used by themselves become unattractively small because they must assume most of the adjustment for oversupply of all feed grains. In addition, a total feed grain allotment could make it readily possible for all feed grains to come under the acreage reserve. While the acreage reserve is in force (1958 and 1959) production would be reduced enough to allow a substantial reduction in stocks of corn. Later, in about 1962, production and consumption would be virtually in balance. Price support rates for all feed grains, including corn, under this program are assumed to be discretionary within a range specified by the Congress. Incomes to feed grain and livestock producers in 1962 might be slightly smaller than under the present program. This program would require more extensive controls and more administrative and acreage reserve costs to the Government than the present program.

Another possible program would be moderate support prices for all feed grains, but without allotments. Support would be required for all feed grains, and the mechanism would resemble that now in use for the three grains other than corn. A support range of 60 to 70 percent of parity is assumed for this report. In such a program the acreage reserve would not apply to corn, or to any feed grain. A sizable acreage might go into the conservation reserve. This program would largely free producers of controls, would achieve a better balance between production and consumption of feed grains and livestock, and would reduce costs to the Government. Incomes of feed and livestock producers would be somewhat less than under the present program. At the same time, producers would have the protection of supports to prevent sharp drops in prices, to give some stabilization to supplies and prices of feed from year to year, and to facilitate orderly marketing.

No allotments and no support would subject producers to the risk of variable swings in price and income, without any protection. Adjustments, initially and in the intermediate future, might be drastic. Prices and incomes would not only be lower than under present programs, but would fluctuate greatly.

A number of programs to supplement prices or incomes by direct payments could be proposed. One discussed here is fixed-share base-payment. In it payments would be made at a rate to bring combined prices and payments to a specified level, but they would be paid on a predetermined base quantity only. All production in excess of the base would be without supports. The limitation would help to restrict costs to the Government by preventing large expansion of production. Costs nevertheless would be very substantial. Consumers would benefit from lower prices of livestock products. Incomes to producers would vary with the level of support.

The soil bank program could be enlarged in two ways: (1) by extending the acreage reserve program to all feed grains or providing for a base acreage for corn; and (2) by expanding the conservation reserve program to have approximately 50 million acres under contract by 1962. Either program would be expected to reduce production of feed grains below disappearance, thereby allowing carryover stocks of feed grains to decline from their current high level.

Other proposals would provide Government-assisted insurance to farmers. Programs of this type could allow farmers to insure voluntarily against reductions in either (1) market prices, or (2) income. Premiums paid by producers would be a self-help feature, although it would probably be necessary for the Government to bear part of the costs.

Additional programs could be developed for further expansion of foreign and domestic markets for feed grains. For large new domestic industrial uses to be opened, intensive research would be necessary.

II. FEED GRAIN PROGRAM RECOMMENDATIONS

After careful analysis of the various alternative feed-grain programs, it is the recommendation of the Department of Agriculture that a program eliminating acreage allotments for corn and providing a reasonable level of price support for all feed grains should be enacted. It is apparent that this is the direction toward which most corn producers would prefer to go.

In the December 1956 referendum over 61 percent of the corn farmers voting indicated a preference for a program of this type.

In recent years only from 30 to 40 percent of the corn acreage planted in the commercial corn area was within the corn-acreage allotment. A majority of the farmers preferred to operate their farms without regard to their respective acreage allotments even though this meant a loss of eligibility for corn-price support.

During the last 19 years the commercial corn area spread from 566 counties in 12 States to 894 counties in 24 States. The legal requirements have forced a steady expansion in the extent of controls to which farmers are being subjected.

The evidence is convincing that we should move in the direction of more freedom for our farmers to produce, unfettered by allotments determined by rigid formulas.

The basic question to be answered regarding any price support legislation is this: Are the supports intended to stabilize the farm economy, or are they intended to hold prices continually and substantially above competitive levels? If the purpose is permanent high-level price support and legally calculated acreage allotments, then inevitably decision making must be taken out of the hands of farmers and placed in the hands of Government. We believe that as soon as practicable, the Government should adjust its farm programs in a manner designed to remove the constant infringements on farmer decisions.

Therefore, it is herewith recommended that the price of corn be supported in the same manner as prices of other feed grains, namely, oats, barley, and grain sorghums. Under this proposal there would be no acreage allotments for corn or the other feed grains.

With October 1, 1957, corn stocks expected to be at an all time record of about 1,450 million bushels, and with the continued need

to reduce these stocks, it is assumed that the 1958 program will continue as presently provided by law, with provision made for the acreage reserve program for the 1958 crop of corn. The proposed program has a greater chance for success with the carryover at more reasonable levels. It would also be difficult to make basic changes in time for the 1958 crop year inasmuch as seeding time for fall seeded feed grains will soon be upon us in many areas. After 1958 no acreage reserve program would be provided for corn. The voluntary conservation reserve program would continue and would be a factor affecting feed grain production. (Of course, if the Congress deemed it desirable, appropriate modifications could be made in the proposed program so that it could start for the 1958 crop.)

The recommended program would be expected to start in 1959 and have the following results:

(1) Corn producers would be free of controls. They would be able to make long term plans unaffected by the year-to-year alterations forced by changing acreage allotments. This would be a great step in the direction of freedom for farmers.

(2) Although the actual support level for corn and other feed grains would probably be more moderate than the current level, the fact that all producers would be eligible for price support would result in market prices being much closer to the support than under the current program. For example, on June 15, 1957, with the price support for corn at \$1.50, the average price received by farmers was only \$1.22 (67 percent of parity). The support level for corn would be determined first. Then the rate for other feed grains would be calculated on the basis of comparable feeding value, location, storability, and other factors. All supports may be expressed in dollars per hundred-weight.

(3) It would provide some stabilization of year-to-year supplies of feed grains for livestock producers but would not result in an excessive net accumulation of stocks in Government hands. Farmers would have less incentive to produce for Government storage.

(4) With more moderate price supports, prices of feed grain and incomes to some commercial feed-grain producers would be some lower.

(5) Livestock production would likely be increased in the intermediate future, and there would be the possibility that slightly lower livestock prices might result. However, net incomes of livestock producers might be as high or almost as high as under current support programs.

(6) It would reduce costs to the Government and assist in meeting the public demand for economy in government.

Legislative drafts to carry out above recommendations

Pursuant to Senate Resolution 125, 85th Congress, 1st session, suggested legal language is herewith furnished to implement the above recommendations.

Beginning with the 1959 crop this language would eliminate those provisions of existing law which require corn-acreage allotments and which provide that the minimum level of price support for corn be based upon the "supply percentage."

Two alternative suggestions are made. The first would provide price support for corn, not in excess of 90 percent of parity, in accordance with the 8 guidelines presently specified in section 401 (b) of the

Agricultural Act of 1949, as amended. Also, whenever price support is made available for oats, barley, and grain sorghums such support would be at a fair and reasonable level relative to corn, taking certain factors into consideration. The second alternative is like the first except that price support for corn would be provided between 60 and 90 percent of parity, in accordance with the above factors.

The language for the two alternatives is as follows:

Alternative 1, which is preferred:

A BILL To provide an improved program for feed grains

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That notwithstanding any other provision of law, acreage allotments shall not be in effect for the 1959 and subsequent crops of corn.

SEC. 2. The Agricultural Act of 1949 is amended by adding a new section 102 as follows:

"SEC. 102. Notwithstanding any other provision of this Act, beginning with the 1959 crop, (a) price support shall be made available for corn at such level not in excess of 90 per centum of parity price therefor as the Secretary determines appropriate after consideration of the factors specified in section 401 (b), and (b) whenever price support is made available for oats, barley, and grain sorghums, respectively, such support shall be at such level as the Secretary determines is fair and reasonable in relation to the level at which price support is made available for corn, taking into consideration the feeding value of such commodity in relation to corn, the normal price relationship between such commodity and corn, and the location and storability of the commodity and other relevant factors."

Alternative 2:

A BILL To provide an improved program for feed grain

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That notwithstanding any other provision of law, acreage allotments shall not be in effect for the 1959 and subsequent crops of corn.

SEC. 2. The Agricultural Act of 1949 is amended by adding a new section 102 as follows:

"SEC. 102. Notwithstanding any other provision of this Act, beginning with the 1959 crop, (a) price support shall be made available for corn at such level not less than 60 or more than 90 per centum of the parity price therefor as the Secretary determines appropriate after consideration of the factors specified in section 401 (b), and (b) whenever price support is made available for oats, barley, and grain sorghums, respectively, such support shall be at such level as the Secretary determines is fair and reasonable in relation to the level at which price support is made available for corn, taking into consideration the feeding value of such commodity in relation to corn, the normal price relationship between such commodity and corn, and the location and storability of the commodity and other relevant factors."

III. BACKGROUND INFORMATION

TRENDS IN FEED AND LIVESTOCK PRODUCTION AND PRICES

Feed grains, along with forage crops, are basically raw materials of the livestock industry. About 85 percent of their utilization is as feed for livestock, through which they are marketed as meat animals, dairy products, poultry, and eggs. The 4 feed grains alone—corn, oats, barley, and grain sorghums—provide only 5 to 7 percent of all receipts to farmers from cash sales of farm products, but as marketed through livestock they are highly important. Cash receipts from feed grains and livestock together exceed those from all other commodities combined, contributing 60 percent of total receipts in 1956 (table 1). Feed crops and livestock absorb a larger part of all farm inputs than do any other commodities. About two-thirds of all crop acres were

devoted to feed grains, hay, and forage sorghums in 1956 (table 2). Of all farm labor time, feed crops and livestock claim 60 percent. About 52 percent of all fertilizer nutrients were applied on feed grains and hay in 1954, the latest year of data; this was an increase from 44 percent in 1950 and 39 percent in 1947. In similar comparisons for capital investment and for various cash inputs, feed crops and livestock bulk large.

TABLE 1.—*Sources of cash receipts to farmers by commodities*

Period	Livestock and products			Crops			Total 1
	Meat animals	Poultry products	Dairy products	Feed grains	Wheat	Cotton (lint and seed)	
	Millions of dollars						
Average:							
1936-40.....	2,294	816	1,452	403	473	742	8,246
1946-50.....	8,658	2,959	3,915	1,748	2,081	2,288	28,191
1951.....	11,360	3,605	2 4,254	1,653	1,769	2,852	32,909
1956.....	8,246	3,219	4,478	2,241	1,779	2,517	30,372
	Percentage of total						
Average:							
1936-40.....	27.8	9.9	17.6	4.9	5.7	9.0	100.0
1946-50.....	30.7	10.5	13.9	6.2	7.4	8.0	100.0
1951.....	34.5	11.0	12.9	5.0	5.4	8.7	100.0
1956.....	27.2	10.6	14.7	7.4	5.9	8.3	100.0

¹ Total for all products, including those not shown. Does not include Government payments. For more detail see appendix, table 18.

² Excludes farm butter.

TABLE 2.—*Planted acreages, major crops, averages 1931-35 and 1946-50, annual 1951-56*

Period	Feed grains			Other feed crops ³		Wheat	Cot- ton ⁴	Soy- beans for beans ⁵	Total ⁶
	Corn	Other ¹	Total ²	Hay	Sorghums for forage and silage				
	Millions of acres								
Average:									
1931-35-----	106.6	61.3	167.9	68.2	7.5	67.1	34.4	1.5	364.0
1946-50-----	85.8	63.5	149.3	73.6	5.2	76.7	21.9	11.3	357.4
1951-----	83.3	60.3	143.6	75.1	5.4	78.5	28.2	13.6	361.8
1952-----	82.2	56.8	139.1	75.1	5.4	78.6	27.2	14.4	355.2
1953-----	81.6	59.1	140.7	75.0	5.9	78.9	25.2	14.8	358.8
1954-----	82.2	73.3	155.5	73.7	6.4	62.5	19.8	17.0	354.5
1955-----	81.1	76.7	157.8	75.4	8.0	58.2	17.5	18.6	353.9
1956-----	78.6	68.7	147.3	73.6	7.8	60.7	16.9	20.9	345.9
	Percentage of total								
Average:									
1931-35-----	29.3	16.8	46.2	18.7	2.1	18.4	9.4	0.4	100.0
1946-50-----	24.0	17.8	41.7	20.6	1.5	21.5	6.1	3.2	100.0
1951-----	23.0	16.7	39.7	20.7	1.5	21.7	7.8	3.8	100.0
1956-----	22.7	19.9	42.6	21.3	2.3	17.5	4.9	6.0	100.0

¹ Oats, barley, and sorghums for grain. Acreage of sorghums for grain is harvested acreage.

² May not add, due to rounding.

³ Harvested acreage.

⁴ Acreage in cultivation July 1.

⁵ As reported by AMS for 59 crops planted or grown.

NOTE.—For more detail see appendix, table 19.

The consequence is that policies neither for feed alone, nor for feed and livestock, can be analyzed without giving attention to the entire farm economy. Similar concern is perhaps less essential and certainly has not always been expressed in setting up programs for individual commodities of smaller magnitude. The acreage of tobacco or peanuts is small enough relative to total crop acreage that small variations in it may be of negligible importance; and even for cotton and wheat, acreages of which are larger, the bearing that their allotments have on other commodities has frequently been little considered.

Whenever allotments have been applied to any other crops, feed crops, together with soybeans and a few minor crops, have been the residual recipients of land released. Production of feed is then increased. In several periods the demand for livestock products has been strong enough to utilize readily all feed available. During 2 or 3 years of World War II, for example, the surplus stock of feed grains and wheat previously accumulated was entirely fed and a shortage followed. Stocks mounted rapidly following the record 1948 crops, but they were reduced about a third during the upsurge in demand for livestock products that followed the outbreak of the Korean conflict in 1950. Not until somewhat later, when cattle slaughter expanded cyclically and production of broilers and some other livestock products was on an uptrend, did output of feed and livestock begin to outrun the demand for them. Since then, the feed and livestock economy has been essentially in surplus, as measured, where applicable, by existing support prices.

Apart from the effect of this actual postwar experience on policy, a transfer of resources from cash allotment crops to feed and livestock has frequently been justified in terms of the fairly elastic nature of demand for livestock products. Unlike products such as wheat, disappearance of which will increase appreciably only if farm prices fall a great deal, outlets for meat, milk, and eggs can be expanded with more moderate reductions in prices. Therefore, less severe price declines result from an expansion in livestock than in such crops as wheat. Moreover, consumption of livestock products increases more with rising incomes of consumers and this too has been held to favor increasing production of livestock rather than of cash crops.

Hence by virtue of historical event and by choice, to feed crops and livestock have been allocated most of the resources diverted from other farm products.

When after a period of transferring resources toward feed and livestock a surplus situation appears for them, there are few further alternatives remaining to be turned to. Resources for the feed and livestock economy cannot be shifted in any substantial measure to still another commodity group. They then become an indicator of surplus resources for the total farm economy.

Insofar as a reckoning becomes necessary for feed and livestock, the intercommodity impact of support programs can no longer be disregarded. Acreage diverted from each crop alone may not be overwhelming, but the sum of diverted acres from all crops may become so. Inasmuch as it proves necessary to deal with total farm resources, it may become essential to reconsider points of view with respect to individual commodity programs. If demand for livestock products is found less expansible than formerly, it may be advantageous to pursue the possibility of expanding outlets for allotment crops.

Feed grain and livestock production expand on decreasing acreage

The acreage devoted to feed grains has generally decreased over the last three decades. The 4-grain total dropped from the early 1930's to 1952, when it was down to 139 million acres. From 1952 to 1955 the total increased about 14 percent, but the 158 million acres planted in 1955 was still 10 million acres below the high level of 1931-35, as shown in table 2.

The downtrend has been essentially in acreage of corn. Corn acreage decreased steadily after hitting a record of 113 million acres planted in 1932 (see chart top of next page). During the droughts of the 1930's the decline centered in the Corn Belt. Since 1939, however, the Corn Belt has decreased no more, and practically all of the further drop of 13 million acres has been in Southern States.

In 1957 farmers planted about 93½ million acres of corn, 5 million less than in 1956. The low 1957 acreage reflects the influence of the acreage-allotment and soil-bank programs in the Corn Belt and unfavorable weather in some States as well as a continuation of the decline in acreage in the South.

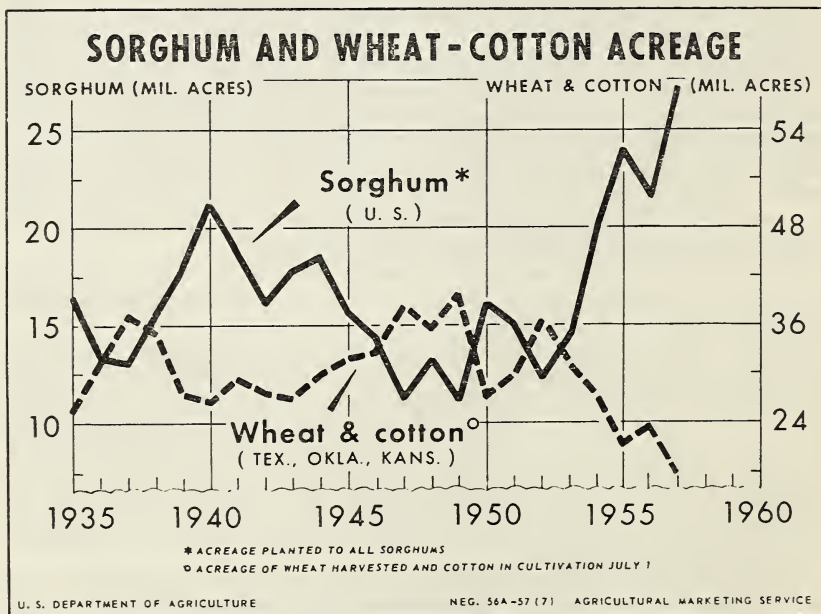
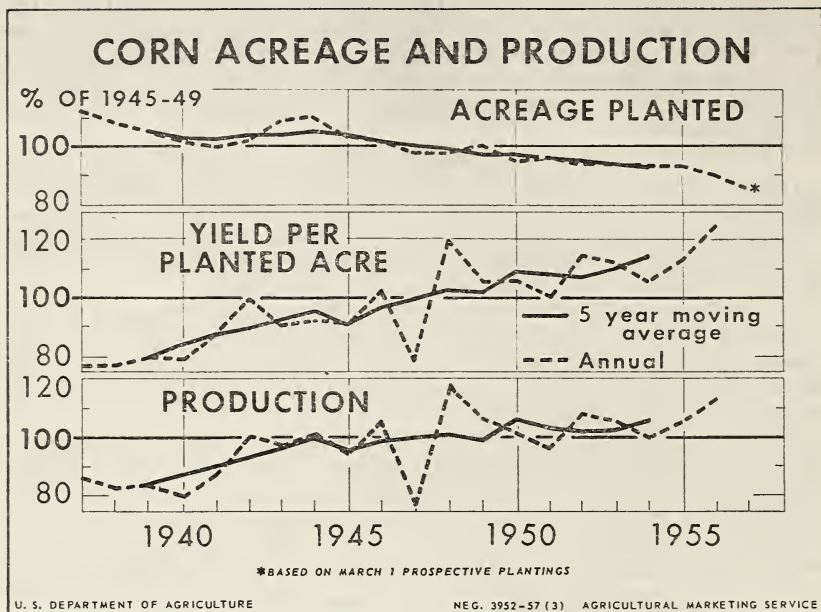
Acres of the 3 small feed grains—oats, barley, and sorghum grains—have traced an entirely different course. Their trend was almost level, without major uptrend or downtrend, from the early 1930's to early 1950's (table 2). After 1952 the acreage of those 3 crops increased, accounting entirely for a rise in total feed grain acreage. From 1952 to 1955, when the acreage planted to corn declined slightly, that seeded to oats increased 12 percent and barley 77 percent, and the acreage of sorghums harvested for grain more than doubled. Acreages of each of the 3 small feed grains, as well as corn, declined in 1956. In 1957 the seeded acreage of oats declined further but that of barley and sorghums increased.

The increase in sorghum acreage since 1952 has been most pronounced in the Great Plains and Southwest where sorghums have been used extensively as a cash crop to replace wheat and cotton, which have been under acreage allotment since 1954 (see lower chart, next page, which shows opposite changed in sorghum acreage and in wheat and cotton acreage in three States). Increases in barley have been general in the Midwest and Western States as barley has been the major crop seeded on land taken out of wheat.

In spite of declining acreages of feed grains, production of feed has increased substantially over the last 25 years, and output of livestock products has risen even faster.

Higher yields of feed crops per acre are the first factor underlying this uptrend in livestock output. Its yield rising 65 percent, production of corn recently has been more than one-fourth above 1926-30 on a fifth fewer acres. Yields of the other feed grains also have increased, although not as much. Sorghum grain yields have edged up in the past few years as irrigation has become more common in the Southwest. The 1952-56 average production of 124 million tons of all feed grains was more than one-fourth larger than the 96 million tons produced in 1926-30.

As a second factor, supplies of other feeds have been expanded. The hay harvest in 1952-56 was larger than in 1926-30 by 25 million tons or 30 percent. Although the quantity of feed obtained from pasture cannot be measured exactly, a considerable improvement in pastures and ranges and in their carrying capacity has definitely taken place.



Further, the supply of byproduct feed has nearly doubled in the last 25 years, to its present record of 24 million tons. Soybean meal has been the most important contributor to this increase, now (1956-57) ranking next to corn and oats among concentrate feeds. The 7 million tons available for feeding in 1956-57 are equivalent in feeding value to around 400 million bushels of corn. Moreover, soybean meal adds materially to the protein balance of livestock and poultry rations. Molasses feeding also has risen sharply from around 100 million gallons prior to World War II to its current 400 million gallons, an increase equivalent to 45 million bushels of corn. The use of wheat as grain for feed, on the other hand, has declined from an average annual rate of 117 million bushels in 1937-41 to only about 50 to 70 million bushels in recent years.

While feed supplies have thus been expanding, livestock output has received substantial boosts from two other directions. One is the freeing of very sizable quantities of hay, pasture, and concentrate feeds from use by workstock to "productive" livestock—to producing meat, milk, and eggs. By 1956 the equivalent of about 70 million crop acres had been released by virtue of reduced horse and mule numbers, compared with the 1919 peak. From 1926-30 to 1956 the acreage so released was about 58 million.

Finally, there has been some increase, particularly in the last few years, in the efficiency with which feed is converted to livestock products. (Technological progress both in feed crop yields per acre and in feeding efficiency is reviewed in a separate section.)

That livestock production, responding to all these influences, has expanded remarkably is indicated by data in table 3. Total production, after lagging in the depressed and drought years of the 1930's, advanced rapidly during defense and war years and climbed further after the war. By 1946-50, output of all livestock products was 42 percent greater than in 1926-30. Even though the consuming population was 20 percent larger, consumption of livestock products per person rose by 13½ percent.

TABLE 3.—*Production and consumption of livestock products*

Period	Index of production of all live- stock prod- ucts (1947-49=100)	Consumption per person				
		Meat	Eggs	Chicken and turkey ¹	Milk, total solids	Index, all livestock products (1947-49=100)
		<i>Pound</i>	<i>Number</i>	<i>Pound</i>	<i>Pound</i>	
Average:						
1926-30.....	71	133	337	² 16.2	69.8	89
1946-50.....	101	149	385	22.8	76.8	101
1951.....	102	138	392	26.1	74.1	98
1956.....	122	167	369	29.4	75.0	107

¹ Ready-to-eat basis.

² Includes provisional estimate for turkey, not previously reported.

NOTE.—For more detail see appendix, table 25.

Moreover, during the last few years the increase in livestock production has, if anything, been even more rapid. By 1956, aggregate livestock output was 21 percent larger than in 1946-50. Beef and poultry led in the increase; their production was up more than 50 percent from 1946-50 and 100 percent from 1940. Consumption of

livestock products per person in 1956 was 6 percent above 1946-50. Meat consumption per person was a new high of 167 pounds, and poultry meat consumption a record 29½ pounds. This high consumption of livestock products was achieved even while considerable quantities of some products were diverted from the domestic commercial markets. Government purchases of dairy products in 1956 were the equivalent of 5.2 billion pounds of fluid milk. Some beef, pork, eggs, turkey, and chicken were bought under section 32 surplus-removal programs or shipped abroad by ICA or under Public Law 480.

Feed reserves larger

Total utilization of feed grains has increased over the past two or three decades but has not kept pace recently with increasing production, causing an addition to stocks. The total tonnage of feed grains consumed domestically and exported averaged 119 million tons during 5 marketing years beginning 1951-52, nearly a fifth more than in the late twenties and about equal to the 1942-45 wartime average. This recent utilization rate, however, has averaged nearly 5 million tons below annual production plus small imports, resulting in an increase of carryover stocks from 20 million tons in 1952 to 49 million in 1957. About 4 percent of production has been added to stocks each year. All of the increase in stocks since 1952 has been in those under Government price support, as "free" stocks have declined nearly 3 million tons.

Of total utilization of feed grains about 85 percent has been used in recent years for livestock feeding and 10 percent for domestic food, industrial uses, and seed. A little under 5 percent has been exported. However, less of the feed grains fed to livestock has gone to horses and mules, numbers of which are now only a small fraction of their one time level; and more has been fed to cattle, hogs, and poultry. Consumption by horses and mules declined from about 20 million tons annually, a little over 20 percent of total utilization, in 1926-30 to less than 3 million tons in the past few years.

The use of feed grains for food, seed, and industrial purposes has trended upward at only a slightly faster rate than total consumption, and has ranged from 8 to 12 percent of the total in most of the last 30 years. The upward trend over those years has been largely the result of increasing use of corn by the wet-processing industry and of barley by the malting industry. Use of feed grains for purposes other than feed does not change materially from year to year with changes in production and prices. Most of the variation in production is generally absorbed by changes in quantity fed to livestock or in carry-over stocks.

The quantity of feed grains exported also has increased over the last 30 years, reaching a record level of a little over 8 million tons in 1955-56. Even the big exports in 1955-56 amounted to only 6 percent of total utilization. In most other recent postwar years exports have accounted for 4 or 5 percent of total utilization and in the

period from 1926 to World War II they usually were only 1 or 2 percent of the total. A substantial part of the comparatively heavy exports since the war has come out of CCC surplus stocks through various foreign aid programs.

Prices and incomes lower

Larger supplies of feed and livestock and an apparent slowdown in previous rates of growth in consumer demand for livestock products, together with wider marketing margins for livestock products, combined to result in generally declining prices and incomes for both livestock and feed during most of the 1950's to date. The index of prices received by farmers for livestock and livestock products, after climbing early in the Korean conflict to a high of 336 (1910-14=100), dropped to 230 by 1956. Likewise, the index of feed grain prices fell from 242 in 1952 to 188 in 1956 (table 4 and charts). Livestock prices have recovered somewhat in 1957, but feed grain prices in the first 6 months of 1957 averaged about the same as a year before.

Cash receipts from marketings of all livestock and livestock products decreased from \$19½ billion in 1951 to about \$16 billion in each of the last 3 years (table 1). Receipts from dairy products increased a little, as price support purchases provided a prop. Receipts from poultry and eggs declined moderately, while those from meat animals dropped almost a third.

Feed prices during the past decade or so have been dominated by 3 forces: (1) Changes in demand for feed resulting from previous changes in demand for livestock and livestock products, (2) changes in feed grain production, and (3) the price-support programs. During World War II and for 2 years following, Government price supports had little effect on feed grain prices as the strong demand and short 1947 crops held prices generally above supports. Since the record crop of 1948, however, the support program has been a dominant factor in the feed-grain picture. In 7 of the past 9 years substantial quantities of feed grains have gone under support. In 2 years, 1950-51 and 1951-52, when prices rose as a result of the Korean conflict, substantial quantities of feed grains were sold from CCC stocks. With declining demand and increasing production feed prices dropped 22 percent from 1952 to 1956. The 1956 prices, however, were still 7 percent above the postwar low for the calendar year 1949.

The relation between prices of the various feed grains is influenced largely by the relative size of the crops, together with comparative support prices. Following the big corn crops of 1948 and 1949, corn prices were relatively low as compared with prices of other feed grains. But increasing production and lower support prices for 1954 and 1955 crops of oats, barley, and sorghum grain resulted in prices of these grains falling, relative to corn, especially in the summer months of those 2 years. With smaller crops in 1956 and higher price supports, prices of the three grains have been a little above average in relation to corn prices during the 1956-57 season.

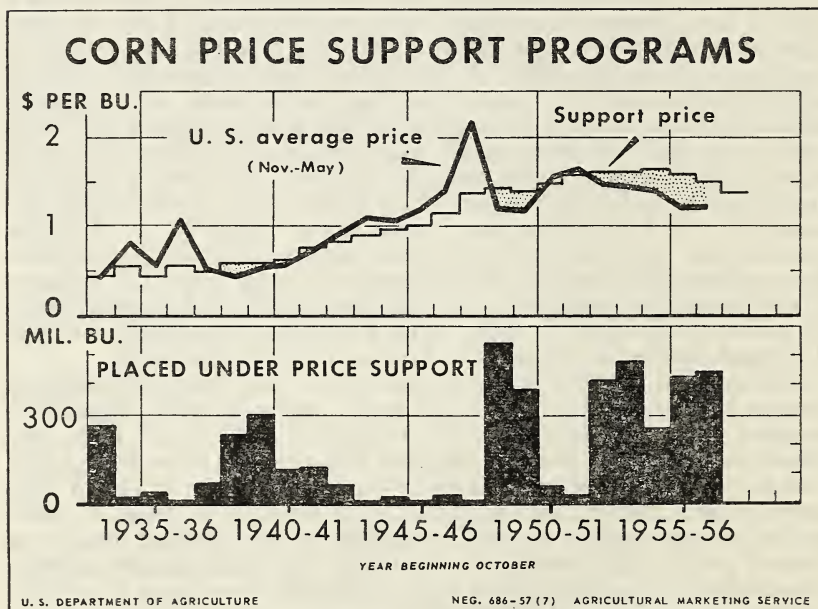
TABLE 4.—Prices received by farmers for livestock products and feed grains

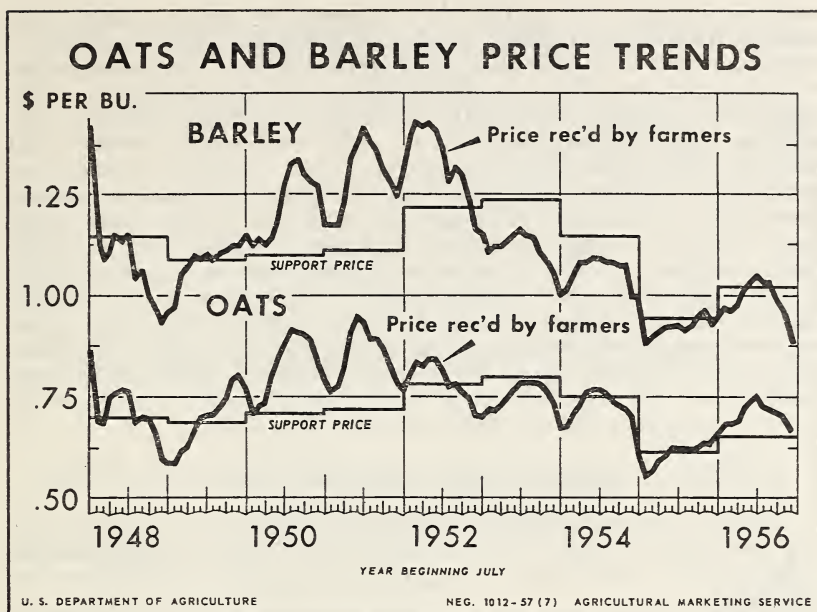
Period	Beef cattle, per 100 pounds	Hogs, per 100 pounds	Eggs, per dozen	Farm chickens, per pound	Wholesale milk, per 100 pounds	Index, all livestock and prod- ucts, 1910- 14=100 ¹
	<i>Dollars</i>	<i>Dollars</i>	<i>Cents</i>	<i>Cents</i>	<i>Dollars</i>	
Average 1937-41.....	7.41	7.59	20.1	14.5	1.88	118
1951.....	28.70	20.00	47.7	25.0	4.58	336
1952.....	24.30	17.80	41.6	22.1	4.85	306
1956.....	14.90	14.40	38.7	16.0	4.13	230

Period	Corn, per bushel ²	Oats, per bushel ²	Barley, per bushel ²	Sorghum grains, per 100 pounds ²	Index, all feed grains, 1910-14=100
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	
Average 1937-41.....	0.59	0.31	0.45	0.89	92
1951.....	1.66	.82	1.24	2.36	237
1952.....	1.53	.79	1.35	2.80	242
1956.....	1.29	.69	.99	2.05	183

¹ Includes prices of several products not shown.² Crop year prices.

For more detail see appendix, tables 28-29.





YEAR TO YEAR INSTABILITY

Production of feed crops has typically fluctuated a great deal from year to year. Part of the variation is caused by changes in acreage but the larger part is due to fluctuating yields per acre. In about one-third of all years since 1900, the yield of corn per planted acre has been 3 or more bushels higher or lower than its normal or trend value, a difference amounting to 225 million bushels or more. In a tenth of all years the yield has differed from average by 6 bushels or more, which is equivalent to at least a 450 million bushel departure.

These year by year changes in yield, creating roughly comparable changes in production, have contributed to sizable fluctuations in production of livestock products. A stated objective of corn price support programs for a good many years has been to bring a degree of stability to the yearly supplies and prices of feed to livestock producers. It has done so in part, though far from perfectly. As one impeding factor, the provision in the support program for a price differential between support and release prices has prevented feed from moving into consumption immediately upon a rise of market price above support levels (except as counteracted when grain in danger of deterioration is sold by CCC). Also, changing provisions and policies as to price support have hindered stabilization; and on 2 or 3 occasions (such as 1947) reserve stocks were not sufficient to meet all needs for feed.

There are variations also in demand for feed. Feed grain programs may be designed also to compensate for these in part. Unlike crop yields, demand does not fluctuate so much from year to year but swings up or down for a number of years at a time. Twice in the past 15 years, reserve stocks of grain have been used to meet heavy

wartime demand. It is difficult to assess the value of farm commodity reserves in helping to control inflation during periods of strong demand, or in providing raw materials basic to defense planning, or in assisting our allies in periods of war or national emergency. It is noteworthy, though, that insofar as storage is intended chiefly to correct for year to year variations in yield, stocks will fluctuate but need not accumulate beyond moderate levels. Insofar as stocks are desired also as reserve for periods of strong demand and/or national emergency, they would necessarily be somewhat larger; they would tend to increase during depression, but again to become more moderate during prosperity. Feed programs of past years have had elements of both objectives—the counteracting of variations in size of feed harvests and in demand—and, as a broad observation, feed grain reserves roughly conformed to the above pattern during the 1930's and 1940's and even up to the Korean conflict. They have corresponded less well recently, accumulating more rapidly and exceeding the size normally expected during industrial prosperity.

TECHNOLOGICAL DEVELOPMENTS

American agriculture is in the midst of a technological revolution. For the last 20 years one innovation after another has made its influence felt on the level of productivity and on the efficiency of production.

One expression of gains in efficiency is production per man-hour of farm labor. From 1910 to the mid-1930's production per man-hour changed little for crops or livestock. (See charts on following page.) But gains since have been enormous. They have been greater for crops than for livestock and those for feed grains have been especially noteworthy. The slower rate of improvement in labor efficiency for hay production has contributed to a changing balance between production of forage and feed grain.

Mechanization, hybrid corn, improved organization and management, disease control, and a myriad of improved practices have all contributed to technological advance. Why labor efficiency has increased more for crops and especially feed grains than for livestock is of special interest. Crops are more susceptible to mechanization. Crops research of many types pays off faster, too, because of less limiting biological conditions. Breeding work, for example, can be carried on with crops with much less expense, and findings can be put into use more rapidly. Thus, in the earlier phases of advance in technology, results are likely to show up first in crops. But this does not mean that they will not appear later in livestock.

Efficiency may be measured not only by production per man-hour, but also in terms of output per acre, per breeding unit and per unit of feed. These measures may have more bearing on future production of feed grains and livestock than does the efficiency in use of labor.

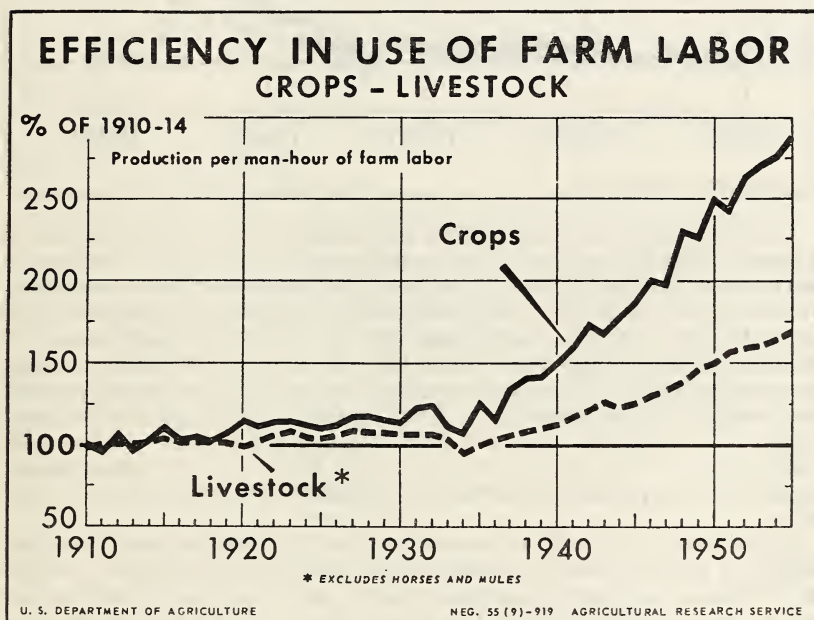
Table 5 shows what has happened since 1925-29 in terms of these measures.

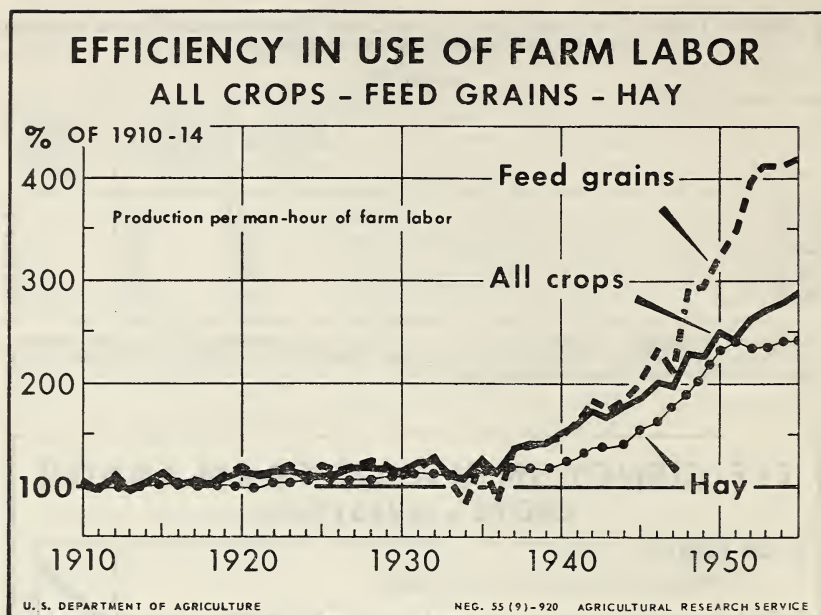
TABLE 5.—Index of crop production per acre, and livestock production per breeding unit and per ton of feed, averages 1925-54¹

[1947-49=100]

Period	Crop production per acre	Livestock production per breeding unit	Livestock production per ton of feed
1925-29	81	81	97
1930-34	73	83	100
1935-39	80	88	101
1940-44	93	95	98
1945-49	99	98	97
1950-54	101	108	104

¹ Computed from data in ARS report, Changes in Farm Production and Efficiency, and other data from Farm Economics Research Division, ARS. Data do not include units of workstock or feed consumed by them. Feed data are total feed units of all feeds.





Commercially mixed feeds are a technological link between feed and livestock that makes it possible to adopt quickly any new findings in nutrition or feed additives. Additives include a long list of minerals, vitamins, amino acids, urea, hormones, antibiotics, detergents, surfactants, antioxidants, and other growth factors, preservatives, or medicaments. Commercial feeds also facilitate substitution among various feedstuffs. They have contributed a great deal to the present commercial broiler industry. They underpin milk production and supply supplemental feeds for beef and hog production. The rapid introduction of stilbestrol in beef cattle feeding is one illustration. Antibiotics in pig supplements have greatly reduced losses of small pigs.

Nearly all of the improvements in livestock feeding and livestock efficiency work toward increased output of livestock products. Some innovations that permit substitution of one nutrient for another do not at once increase output but release feed which can soon be used for that purpose. Urea for example permits substitution of carbohydrates for some protein, and this releases protein feed to be used elsewhere. Any development that increases efficiency in feed conversion is equivalent to an increase in feed supplies.

The commercial feed industry is also altering the location, organization, and scale of livestock enterprises and is tending to dissociate livestock production from its former home-grown feed base.

Crop production per acre and livestock production per breeding unit have been rising steadily over the last quarter century. On the other hand, conversion of feed to livestock products as measured by livestock production per ton of feed units has risen little except in the last few years.

Changes in the efficiency with which feed is converted to livestock products are reflected in long run trends in livestock-feed price ratios. These ratios, such as hog-corn and egg-feed, have been the traditional barometers of livestock expansion or contraction. The hog-corn price ratio still averages around 12, the same as 30 years ago. The beef steer-corn ratio has tended to increase, while outstanding new efficiencies in feed conversion for poultry are evidenced in declining egg-feed, farm chicken-feed, and commercial broiler-feed ratios. (See appendix, table 31.)

What lies ahead? Rapid technological progress in both plant and animal production continues. In plant breeding, for instance, hybrid grain sorghums have been possible only since about 1952 when a special type of male sterility was found which made controlled cross-pollination feasible. Improvement work with grasses and legumes has only begun.

Fundamental research in botany, plant and animal physiology, and biochemistry that is now underway is expected to throw new light on basic life processes and systems. Photosynthesis is only one of the areas in which new knowledge may lead to further increases in productivity.

Moreover, increasing use of commercial fertilizer on feed-grain crops could add a great deal to yields. This may for a time overshadow gains from other sources.

DESCRIPTION OF PAST PRICE SUPPORT PROGRAMS FOR FEED GRAINS

Prices of corn have been supported since 1933. The table that follows summarizes the principal provisions of support activity. Descriptive detail are given in the appendix.

Price support on barley and sorghum grains was first made in 1940, and on oats in 1945. Support of these three crops has been discretionary with the Secretary of Agriculture except in 1956, when it was required by law. Also, in 1957 support is mandatory only if the Secretary extends price support on corn to noncompliers in the commercial area.

Except for these two mandatory provisions, added later, the Agricultural Act of 1949 specified that whether support on the three grains could be offered and at what rate was to be decided on the basis of eight factors. These factors, and detailed information on supports for the feed grains other than corn, are given in the appendix.

FARMERS' RESPONSE TO CORN ACREAGE ALLOTMENTS IN THE COMMERCIAL AREA

Corn acreage allotments have been in effect in the commercial corn producing area in 10 out of the past 20 years, as shown in table 7. The commercial area changes somewhat from year to year.

Acreage allotments have been much less effective in reducing acreage and production for corn than for the other "basic" crops, and apparently have been less effective since World War II than before it. Marketing quotas and their accompanying penalties were never proclaimed for corn before Congress repealed the provisions for them in 1954. Hence, when corn producers in the commercial area do not comply with their acreage allotment they merely lose their eligibility

for price supports; they are not subject to penalty. Most corn producers grow corn principally for livestock feed and are not highly interested in the price support program.

It would be extremely difficult to appraise accurately the net effect of allotments on corn acreage and production. However, data for the commercial area afford some indication. In 1938-42 corn plantings in the commercial area exceeded total allotments by 2 to 10 percent (table 7). For the commercial area as defined in 1941, data for which are shown for 1930-42, acreage declined from 51 million in 1936 to 41 million in 1941 (table 8).

Acreage allotments were not in effect from 1943 to 1949. In 1950 farmers overplanted the allotment by 14 percent (table 7). As allotments for that year called for a reduction of about 20 percent from 1949, the 52.6 million acres planted in 1950 were 9 percent below the 57.9 million acres planted in the same area in 1949 (table 8).

TABLE 6.—Principal features of price support programs for corn, 1933 to date

Crop years	Authority	Loan rates			Distinguishing features	Scope of operations
		Dollar per bushel	Percent of parity	Mandatory versus discretionary		
(1)		(2)	(3)	(4)	(5)	(6)
1933-37	CCC Charter	0.45 to 0.55	55 to 68	Discretionary (as to support and level of support).	(a) Loan rates the same in all areas. (b) Loans made only in States with farm warehouse acts in effect.	The quantities placed under support during this period varied up to 71 percent of the crop, except for 1937 all corn pledged for loans was redeemed by producers. The quantities placed under support during 1934-36 were approximately:
1938-40	Agricultural Adjustment Act of 1938.	.57 to .61	69 to 75	Mandatory at 52 to 75 percent depending on production and price levels.	(a) Loans available in all corn producing areas. (b) Loans to noncooperators in commercial area at 60 percent of rate for cooperators at discretion. (c) Loans to cooperators in noncommercial area at 75 percent of commercial area rate. (d) Loan rates adjusted for differences in grade and quality. (e) If marketing quotas are rejected by growers no loans made. (f) Conservation payments made to cooperators including premium for underplanting of allotments. (g) In 1939 and 1940 support contingent on compliance with soil depleting acreage allotment.	Acreage allotments: 1938—10,500,000 acres; commercial area 566 counties, 12 States. 1939—41,200,000 acres; commercial area 585 counties, 12 States. 1940—36,606,000 acres; commercial area 599 counties, 12 States. From 100,000,000 to 300,000,000 bushels, 4 to 12 percent of the crop, put under loan in this period.
1941-49	Act of May 26, 1941, as amended. Stabilization Act of 1942.	0.75 to 1.44. 0.75 to 1.44.	1941-43-85. 1944-49-90.	Mandatory 85 percent of parity on 1941 crop. Mandatory 90 percent of parity on 1942 crops and each crop harvested thereafter, before 2 calendar years following proclamation of termination of hostilities of World War II unless the President decided the lower rate was necessary.	(a) 1941 crop loans were varied by locations; differentials for locations have been a feature of all subsequent programs. (b) 1941 crop loans were a 3-year period to mature on Aug. 1, 1944, unless called earlier. For the first time, loans were callable on demand. (c) Acreage allotments were in effect for only 1941 and 1942 crops during this period. Allotments were suspended under emergency authority of the Secretary for 1943-49 crops under Agricultural Adjustment Act of 1938 provisions.	Acreage allotments: 1941—37,300,000 acres; commercial area 623 counties, 15 States. 1942—41,300,000 acres; commercial area; 623 counties, 15 States. 1943—43,400,000 acres (suspended) commercial area 623 counties, 15 States. 1944-49 not proclaimed. Placed under price support: Less than 1 percent of the crop for the years 1943-44; of which 12 percent of the 1943 and 1949 crops. Approximately 500,000,000 bushels in 1948 were acquired by CCC, more than from all previous corn programs combined.

TABLE 6.—Principal features of price support programs for corn, 1933 to date—Continued

Crop years	Authority	Loan rates			Distinguishing features (5)	Scope of operations (6)
		Dollar per bushel (2)	Percent of parity (3)	Mandatory versus discretionary (4)		
1930-55----	Agricultural Act of 1949.	1.47 to 1.62-----	1950—54-90; 1955—87.	Mandatory 75 to 90 percent depending on supply percentage.	(a) 90 percent of parity for 1950 crop and not less than 80 percent of parity for the 1951 crop, with acreage allotments or marketing quotas in effect. (b) Amendments to act extended 90 percent support to 1953 and 1954 crops and provided for 1956 support at not less than 82.5 percent. (c) Support to producers outside commercial area at 75 percent of rate in commercial area. (d) Support could be extended to non-compliers in commercial area not in excess of support rate for cooperators. (e) If marketing quotas disapproved by producers, support would be 50 percent of parity. (f) Allowance for carryover in computing allotments and quotas, and to determine support level, was increased to 15 percent of domestic consumption and exports. (g) Provided marketing quotas would not be applicable to corn.	Acreage allotments: 1950—46,200,000 acres; commercial area, 837 counties in 22 States. 1951—53—allotments suspended. 1954—47,000,000 acres; commercial area, 834 counties in 22 States. 1955—49,800,000 acres; commercial area, 805 counties in 21 States. Placed under price support: Up to 15 percent of the crop; over 400,000,000 bushels of the 1952, 1953, and 1955 crops were put under support. Deliveries to CCG during the 4 years beginning October 1, 1952 ranged from about 200,000,000 to 400,000,000 bushels annually.
1956-----	Agricultural Act of 1954 (amended the 1949 act). Agricultural Act of 1953.	1.50-----	86.2-----	Mandatory-----	(a) Provided for base acreage instead of allotments for the 1956 crop. (b) 1956 support extended for first time to noncompliers in the commercial corn area at \$1.25 per bushel; \$0.25 below the support to cooperators.	1956—43,300,000 acres allotted; commercial area 840 counties in 23 States. Allotments suspended and replaced by a base acreage of 51,000,000 acres (to be eligible for the full support rate a producer either had to stay within: (1) His original farm acreage allotment announced for 1955, or (2) his farm base acreage and place in the soil bank (either acreage reserve or

1957	do	1.36 minimum	77	do	(a) Base acreage provisions not approved by the required two-thirds favorable vote; therefore, allotments are in effect for the 1957 crop and subsequent crops unless the Secretary suspends allotments under his emergency authority.	conservation reserve) acreage of cropland (and equal to 15 percent of his base acreage.) 1957—37,300,000 acres allotted; commercial area, 894 counties in 24 States.
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Corn acreage allotments were not established in 1951, 1952, or 1953, but have been in effect each year since. In 1954 to 1956 farmers overplanted their acreage allotments by 12 to 27 percent, and the corn acreage planted in the 1957 commercial area was maintained at close to the 1951-53 level. During 1954-56, 40 to 51 percent of producers in the commercial area complied with their allotments. Their reductions in acreage, however, were largely offset by increases on farms of noncompliers.

Compliance with the acreage allotment program is relatively higher in the principal cash corn producing areas of Iowa and Illinois than in other areas of the Corn Belt, especially those that predominantly produce livestock. Although loans are available to producers outside the commercial area, the quantity placed under price support there is usually no more than 1 or 2 percent of the total for the country.

TABLE 7.—Commercial corn area: Number of counties, acreage allotted, and estimated planting, 1938-57

Year	Commercial corn area			
	Number of counties	Acreage allotted	Acreage planted	Percent planted is of allotment
		<i>Acres</i>	<i>Acres</i>	
1938.....	566	40,491,279	44,049,000	109
1939.....	586	41,256,000	42,034,000	102
1940.....	599	36,638,000	39,924,000	109
1941.....	623	37,300,000	40,978,000	110
1942.....	623	41,338,000	43,091,000	104
1943 ¹	623	43,423,000	48,268,000	111
1950.....	837	46,246,973	52,584,000	114
1954.....	834	46,995,504	56,544,500	120
1955.....	805	49,842,697	55,994,200	112
1956.....	840	43,280,543	55,086,060	127
1957.....	894	37,288,889	(²)	(²)

¹ 1943 allotments were terminated Jan. 8, 1943.

² Not yet available.

TABLE 8.—*Corn: Acreage planted and production in the commercial and noncommercial areas in specified periods*

1941 COMMERCIAL AREA

Year	Commercial area ¹			Noncommercial area			United States		
	Acreage	Yield	Production	Acreage	Yield	Production	Acreage	Yield	Production
	Million acres	Bushels	Million bushels	Million acres	Bushels	Million bushels	Million acres	Bushels	Million bushels
1930.....	53.1	26.4	1,384	50.8	14.1	696	103.9	20.4	2,080
1931.....	55.2	29.7	1,624	54.2	17.7	952	109.4	23.7	2,576
1932.....	55.6	35.7	1,971	57.4	16.9	959	113.0	26.2	2,930
1933.....	53.4	29.3	1,547	56.4	15.3	851	109.8	22.1	2,398
1934.....	46.1	17.5	794	54.5	12.1	655	100.6	14.6	1,449
1935.....	46.5	31.1	1,429	53.5	16.7	870	100.0	23.4	2,299
1936.....	50.9	16.8	843	51.1	13.1	663	102.0	15.0	1,506
1937.....	49.4	35.9	1,761	47.8	18.7	882	97.2	27.5	2,643
1938.....	45.9	36.2	1,644	48.6	18.9	905	94.5	27.3	2,549
1939.....	43.3	40.8	1,751	48.3	17.3	830	91.6	25.6	2,581
1940.....	40.8	37.8	1,541	47.9	19.1	916	88.7	27.7	2,457
1941.....	41.0	42.6	1,746	45.8	19.7	906	86.8	30.5	2,652
1942.....	43.1	48.1	2,073	45.7	21.8	996	88.8	34.5	3,069

1950 COMMERCIAL AREA

1948.....	56.5	50.9	2,877	29.0	25.1	728	85.5	42.2	3,605
1949.....	57.9	43.6	2,525	28.8	24.7	713	86.7	37.3	3,238
1950.....	52.6	43.7	2,296	30.3	25.2	762	82.9	36.9	² 3,058

1957 COMMERCIAL AREA

1951.....	57.6	40.3	2,321	25.7	23.6	605	83.3	35.1	2,926
1952.....	57.6	48.4	2,783	24.6	20.5	504	82.2	40.0	3,292
1953.....	58.9	45.2	2,665	22.7	24.0	545	81.6	39.3	3,210
1954.....	58.7	43.9	2,580	23.5	20.4	478	82.2	37.2	3,058
1955.....	58.5	43.8	2,562	22.6	29.6	668	81.1	39.8	3,230
1956.....	56.9	49.6	2,823	21.7	29.0	623	78.6	43.9	3,451
1957.....									

¹ Acreages and production in the designated 1941, 1950, and 1957 commercial areas for the years shown.² Unrevised. Production in 1950 has since been revised to 3,075,000,000 bushels

IMPACT OF INCREASED PRODUCTION OF OATS, BARLEY AND GRAIN SORGHUMS ON CORN

The piling up of huge carryover stocks of corn cannot be attributed solely to the performance of corn producers in production of corn. The oversupply of corn stems for the most part from increased production of other feed grains resulting from a shift of acreage to them from basic commodities under allotment and marketing quota controls, principally wheat and cotton. The cumulative increase in production of these other feed grains over the past 3 years is equivalent to about 750 million bushels of corn. Most of the increased production of these other feed grains was used to displace corn, principally for feed. Thus utilization of corn may have been reduced by some 500 or 600 million bushels in the 3 years, resulting in a similar addition to carry-over stocks. If this increase in production of small feed grains and cut in utilization of corn had not occurred, the 1957 allotment for the commercial corn-producing area would have been 50 to 52 million acres instead of 37.3 million acres.

The cropland devoted to oats, barley and grain soybeans in 1954 was 14.2 million acres larger than was planted in 1953. The increase jumped to 17.6 million acres in 1955 but it dropped to 9.5 million acres in 1956. The smaller 1956 figure was due primarily to drought.

Part of the increase in plantings of small feed grains resulted from diverted acres, but slack acres are another source. It is well known that farms complying with the wheat allotment program plant well below their total allotment. In 1955 farmers so complying seeded to wheat only about 90 percent of the allotments. The acreage falling between allotment and seedings of wheat, corn and cotton, often referred to as slack acres, has contributed a substantial part of the increase in the acreage of small feed grains. In wheat and cotton underplanting apparently is done principally to allow a margin of safety, while for corn, crop rotations appear to be the principal factor. Also, drought in some years added to slack acres, which were planted to small feed grains as catch crop.

IV. THE FEED GRAIN-LIVESTOCK POTENTIAL

LONG RANGE PROSPECTS

Essentially to any review of feed grain policies is an appraisal of the permanence of the present situation. Programs to alleviate a transitory condition could conceivably be quite different from those designed for developments of longer duration.

Studies made to date of prospects for the longer future generally relate to the year 1975. The studies start from an assumed continuation of past rates of growth in population, employment, productivity and consumer income in the United States economy. The meaning of such growth to agriculture is then assessed.

Without exception, all such studies show a very sizable increase in the demand for livestock products. This is true because most livestock products are in the category of foods that are highly desired by consumers—foods for which consumers increase their purchases as their buying power rises.

A recent USDA study shows that for the 50 to 60 percent larger incomes per person projected for 1975, consumption of livestock products per person may increase to around 15 to 17 percent above 1951-55.² This consumption is arrived at by considering prices that are considerably higher than 1955 prices for meat animals, slightly higher for poultry products, and about the same for dairy products considered as a whole.³ The largest increase in consumption in 1975, over 1951-55, would be in poultry (around 30 percent), the next largest in meat animals (about a fifth). Consumption of dairy products per person is projected at only 5 or 6 percent above 1951-55, which is about the same as the increase during the last quarter century. It should be noted that consumption rates for meat and poultry in 1956, were substantially above 1951-55; increases in 1975, above 1956, would be considerably less than those above 1951-55.

For a population that by 1975 may be 31 to 44 percent larger than in 1951-55, total requirements for livestock products may be 45 to 60 percent greater than in those base years. Compared with 1956, the increase may be 40 to 50 percent.

² Rex F. Daly, Prospective Demand for Food and Fiber. AMS, USDA. Manuscript in process.

³ This is an assumed level; it is not to be taken as a representation of a desirable price level for 1975.

Production of feed would have to increase a great deal but not quite by an equal percentage. Only a little more feed will be released from use by horses and mules. Much more significant in saving feed will be the notable gains expected in the efficiency of converting feed to livestock products. As noted above (pp. 17 and 18) this efficiency was slow to increase until recent years, with greatest progress in broilers, but new increases in conversion efficiency are anticipated for the next 25 years.

Supplies of byproduct feeds are expected to continue to increase although they might provide a smaller proportion of the total feed supply in the future than recently, depending on demand for the major products from which byproducts are obtained. Production and feeding of oilseed meals probably will at least keep pace with increasing total feed consumption as feeders put more emphasis on the protein balance. Of more question, however, is the future trend in forage as a source of feed nutrients, which is discussed below (p. 31). On the whole, the requirements for feedstuffs to provide for the output of livestock products might be up around 40 to 50 percent as measured from a 1951-55 base, or a fourth to a third from 1956. Feed production could rise slightly less, since part of the 1951-56 production went into a buildup of stocks.

A recent analysis of production potentials, made by the Agricultural Research Service of USDA, indicates that it may be relatively easy to meet the longer term increase of close to 40 to 50 percent over 1951-55, required in production of feed crops, as well as the increases needed in production of other farm products. Several routes are open by which an output of feed crops sufficient to feed the livestock population projected for 1975 can be attained. These include higher yields per acre; additions to acreage of feed crops either by shifting acreage from other crops or by adding to the cropland base; and greater efficiency in use of feed by livestock.

Much greater yields of field crops per acre are possible from fuller use of presently known technology. Considering the improved production practices already known and past trends in the rate at which farmers adopt these practices, with favorable price-cost relationships to farmers it appears possible to increase corn yields by 1975 by 45 percent or more above 1951-55. Increases might be 35 percent or more for barley, 20 to 25 percent for oats, as much as 25 percent for grain sorghums and 30 percent for soybeans. A more moderate step-up in yields of hay and pasture—about 10 to 15 percent—is in prospect under the assumptions. New technological discoveries over the next quarter century undoubtedly will add further to yield and production potentials.

Production of feed crops in 1975 could be increased further, if needed, by shifting acreage to them from crops for which demand increases less rapidly. In addition, another recent USDA study projected a possible increase in total cropland of about 30 million acres above 1949. Much of this acreage could be used for producing feed crops.

A reduction of as much as 10 percent in feed required per unit of livestock production may be possible by 1975, even from present technology. Discovery of new technology during the next two decades probably will improve efficiency even more.

In addition to utilizing the potential increases in productive capacity, there are possibilities for cutting losses of farm products in harvesting, transportation, and storage, and thus reducing future production needs. In view of all prospects for advance by a quarter of a century from now, this study indicates that production capacity in excess of market demands could be the situation then as well as in much of the intervening period.

Virtually all other analyses made recently, all of which take account of the marked technological progress of the last few years, show considerable confidence as to the adequacy of future productive capacity. Many even suggest that if capacity is expanded significantly from time to time, periods of surplus may reappear. All in all, it appears likely that requirements for livestock products in 1975, will be large enough to require conservation of resources and research for technological progress, yet will not be so great as to make necessary a full-speed, forced-draft production at all times. No gap of deficiency between needs for foods of livestock origin and the capacity to produce them is imminent.

PROSPECTS FOR THE NEXT 5 YEARS

Productive capacity appears particularly adequate for the next few years. Demand for livestock products as a whole is expected to increase moderately, but probably not sufficiently to relieve entirely the present surplus situation for feed grains at current support prices, and of dairy products at their support prices.

Consumer demand for livestock products continues to advance but not as fast as it did for a few years after the war. During the postwar inflation it climbed rapidly. This was true again, though to less extent, at the outset of the Korean conflict. Since about 1952 the uptrend has been slower. Demand for beef has held up well but that for pork has declined, and the retail value of red meat consumed per person was slightly lower in 1956 than 1952. In relation to consumers' disposable income, the retail value fell to 4.8 percent from 5.7 percent. Demand for chicken meat (farm chicken and broilers) apparently has been maintained or has strengthened, but that for eggs has been less strong. Among dairy products, demand for fluid milk has been steady to stronger and that for ice cream and several nonfat products has increased, but there have been decreases for fluid cream, evaporated milk, and butter.

On the other hand, most measures of demand probably have exaggerated its recent weakness. The markets both for poultry and meat animals were so overloaded at times during 1955 and 1956, as to give a misleading impression of sluggish demand. Supplies of both red meat and poultry advanced to record highs in 1956.

Yet there are other reasons for expecting the increase in total production of livestock products the next few years to be gradual rather than rapid. One is the fact that marketing margins for most farm products have demonstrated a relentless tendency to widen more than be accounted for by new food services. When margins widen the demand for livestock at the farm is restricted unless consumer demand grows equally as much.

Also, on January 1, 1957, the number of cattle on farms decreased for the first time since a cyclical advance started in 1949. The

breeding herd has been shrunk enough that a reduced production of cattle is to be expected for at least a couple of years. In view of consumers' preference for beef over pork, it is problematical whether the drop in beef supply can be fully replaced by pork, even though hog production is now turning upward.

Production of eggs in the next few years may increase at about the same rate as the population grows, but probably not any faster. Production of milk will likely continue to expand as herds are enlarged further to take fullest advantage of new equipment and methods, offsetting the decline in number of herds, and as milk flow per cow continues to increase. With demand for milk, in total, unlikely to rise as fast as demand for other livestock products, it is by no means certain that all the milk produced will move into consumption. Some will probably be bought by the Government if support prices should remain at their present level.

Projections of feed grain production and requirements in 1957-61 (the four October-September feeding years beginning in 1957), have been made according to three assumptions as to effectiveness of the soil bank. If the bank were to be only slightly effective—enough so that feed grain production would be held at its level of 1954-56, but not decreased—feed requirements for livestock might be sufficient to absorb all production in 1957-61, without further addition to carryover stocks. But no net reduction in stocks would be achieved. That is to say, if feed grain production were to hold steady at its recent size, production might be brought into balance with requirements by the middle of the 1957-61 period, or about 1959. Only a highly effective soil bank or other device that would reduce feed output would accomplish a reduction in stocks of feed grains during the next few years.⁴

Another study, pointed to calendar years 1959-61, yielded similar results. For it a moderately effective soil bank was assumed. The number of animal units fed in those years was estimated at 174 million, or 7½ percent more than the 162 million in 1956. For this increase about 109 million tons of feed grains would need to be fed, 5 million more than were fed in 1956. As carryover stocks apparently are being increased by almost 5 million tons from the 1956 crop, the utilization in 1959-62, would be little different from actual production in 1956.⁵ Thus in this study, too, a balance between production and disappearance by around the end of the 1950's seemed likely—provided production were not expanded. The possible impact of technology even in so short a period as 3 to 5 years could enter into these projections. Wide application of presently known technology might add considerably to potential output of feed crops within the near future—more than estimated in the above projections. As one example, it is frequently reported that expanded application of nitrogen to corn in the Corn Belt could add several bushels per acre to yields.

During the 1960's when cattle numbers will likely be on an uptrend again, needs for feed might increase a little faster than in years up until then. The probable rate of increase in yields of feed crops per acre will have much to do with the adequacy of production in that decade.

⁴ The Feed Situation, November 23, 1956, AMS, USDA.

⁵ The Livestock and Meat Situation, November 15, 1956, AMS, USDA.

RESOURCES TO BE DEVOTED TO FEED AND LIVESTOCK

Attempts to appraise the economic future for farm products commonly evolve as a set of numbers estimating projected requirements and potential output. Each is expressed as a range of probable values. The relation between the two tells whether economic pressures are expected to be stringent or relaxed. The studies reported above are of this form.

In applying the results of such studies to a review of feed grain policy, any suggestion of certainty and exactness is worth guarding against. Projected requirements are an estimate of quantities demanded, which depend on relative prices, incomes, and many other influences. For projections to 1975, quoted at length above, certain prices were specifically taken as a starting point. At any other assumed prices or other assumptions as to income or other economic conditions, requirements would have been different.

With respect to calculations of potential output, much of the uncertainty is couched in terms of unpredictability of the rate of technological advance as discussed above. This concern is valid. In addition, the output of feed and livestock will be affected by the quantity of resources devoted to them. And, in turn, the resources so devoted will be influenced by the price of feed and livestock products relative to other prices, as well as by comparative production costs and by the restrictions placed on production of feed and livestock and on competitive crops.

Resources used in feed and livestock production formerly consisted primarily of land and family labor, plus some capital. Increasingly, capital investment in buildings and equipment, and cash inputs such as fertilizer, gasoline, and insecticides, have become relatively larger. The change has made farm management more complex and has complicated the nature of response to price. This is true because the farmer does not use all inputs in the same way. Essentially, he uses capital and cash inputs so as to earn the largest possible return for his own and his family's labor. In his employment of resources, he will be governed by the relation of prices of farm products both among themselves and to costs. In general, when prices of feed and livestock are high, many current cash inputs will be used and they will bulk large among all resources employed. When prices are lower, current cash costs will tend to be economized, and fixed inputs such as family labor and management will instead be used more fully as replacement. However, if cash inputs have previously been underutilized, the new attention to management in the effort at maintaining incomes might actually result in their expanded use. This apparently has happened in some instances in the case of fertilizer. Production will as a rule be lower with lower product prices, particularly in the longer run, but it is very difficult to estimate the extent of the response at all accurately.

Control of crop acreage through allotments is a reduction in one fixed input. As a response to it farmers will usually increase their variable cash inputs (per acre), and they will try to use other fixed inputs such as labor more fully. Here too the net result is usually a drop in production, and again the extent of decrease is not easily calculated.

As cash costs in production have become ever more important and an ever larger part of the total resources devoted to feed and livestock, output of those products has become more responsive than formerly to change in their prices, but less responsive to change in acreage.

THE POSSIBILITIES OF SUBSTITUTION AMONG FEEDS

The foregoing analysis of production potential for livestock and associated requirements for feed grains has been developed on the assumption that the composition of livestock rations would approximately follow present patterns. Examination of past trends (appendix, table 33) indicates that for most species there has been a moderate increase in the ratio of concentrates to roughage in livestock rations. Beef cattle now obtain much more of their feeds from grains than formerly, largely because a higher proportion of them are finished in the feed lot. Within the group of concentrate feeds there have been substitutions among kinds of feed; and within the roughages, there has been a notable decrease in the relative importance of pasture, and an increase in silage and hay.

It is possible to vary widely the proportions of grain and forage in rations of roughage-consuming livestock. This possibility must be taken into account in a feed-grain program because an increase in the price of grain would cause farmers to substitute more forage for grain in the rations of dairy and beef cattle and to a more limited extent in rations for sheep and hogs. The table below illustrates most profitable proportions between grain and forage in a dairy ration at different grain-forage price ratios under certain assumptions:

TABLE 9.—*Rations for dairy cows at specified grain-forage price ratios*¹

Price of 100 pounds of feed grain or mixed feed	Most profitable daily ration with milk at \$4 a hundred and hay at \$15 a ton. Cows of average productivity, weighing 1,000 pounds and giving 20 pounds milk per day when fed 4 pounds of grain	
	Grain	Hay or hay equivalent
	Pounds	Pounds
\$4.50.....	2.4	26.1
\$4.00.....	4.0	25.0
\$3.20.....	5.7	23.8
\$2.40.....	7.7	22.5

¹ Calculated from data in Agricultural Situation, February 1949, and other sources.

The substitution relationship shown in the table is based upon the availability of good quality forage. A program to support prices of feed grains would encourage livestock producers to seek ways of improving quality and quantity of hay, silage, and pasture production in order to save grain and reduce production costs. Less feed grains would be used at the higher prices, and this would need to be taken account in setting acreage allotments and price supports for feed grains.

The substitution of forages for grain would affect aggregate feed production to some extent. Available data indicate that there might

be little difference in feed-unit production per acre if land were shifted from feed grains to good quality hay or to production of grass silage, provided these crops were managed and fertilized at levels comparable to feed grains. While information on pasture yields is very limited, it appears that a shift from feed grains to rotation pastures might reduce feed production per acre moderately unless intensive grazing and pasture-management practices were followed. A shift to permanent or long-term pastures would reduce feed production per acre substantially—perhaps by as much as 50 percent in the short-run until pasture-management practices were improved. Appendix table 34 indicates the nutrient production per acre from alternative uses of cropland in a few selected areas as estimated in farm-management studies. These analyses all assume high-level management of forage crops and pastures, when only moderate shifts are made in land use. They probably overstate the nutrient production from forages that would follow an adjustment program. Also, the measurement of nutrients in TDN's probably overstates the value of forages since livestock generally make less efficient use of TDN's in forage than in grain.

A shift from production of feed grains to forages would have a more pronounced effect on livestock production because it would reduce numbers of grain-consuming animals and increase numbers of forage-consuming livestock. At the present stage of technology, grain-consuming animals such as chickens, turkeys, and hogs produce more edible product per feed-unit than do beef and dairy cattle and sheep. It has been calculated that under Corn Belt conditions, a shift of 1 acre from corn fed to hogs to permanent pasture grazed by beef cattle might reduce the pounds of edible meat and fat produced from that acre by as much as 80 percent. This is an extreme situation, and reflects present intensive management in corn production and extensive management of pastures. With the kind of adjustment that would follow a feed-grain program, a smaller but significant decrease in aggregate production of livestock products could be anticipated.

INDUSTRIAL OUTLETS FOR FEED GRAINS

Industrial outlets for feed grains, particularly corn, have increased substantially since before World War II. The most significant increase has been in the wet-processing industry—producers of starch, sugar and sirup—which increased its annual crushing rate from around 60 to 80 million bushels before World War II to the current level of around 140 million bushels. The use of corn and sorghum grain for alcohol and distilled spirits increased sharply during World War II to a total of 86 million bushels in 1944. Following the war the producers of industrial alcohol turned to cheaper sources of raw materials, principally petroleum and molasses. Grain used by the distilling industry in recent years has been confined largely to distilled spirits and the total quantity has dropped back to the prewar level of around 20 to 30 million bushels.

The recent report of the Commission on Increased Industrial Use of Agricultural Products made several recommendations relative to expanding industrial use of corn and other grains through increased research and proper incentives to industry. With present knowledge,

these are generally low priced outlets for additional grain. Among the more promising of expanded uses were:

(1) Increased use of starch in the metallurgical industries.

(2) Development of new starches and other grain products for the manufacture of paper and paper products. If through research the amount of starch could be increased so as to make up an additional 2 to 5 percent of the 30 million tons of pulp and paper used annually in the paper industry, 40 to 100 million bushels of grain would be required.

(3) The expanded use of chemicals from grains in insecticides, fungicides and related products.

Expanded use of starch and other grain products for making insulating board and other building materials, for plastics, for chemical agents for oil drilling, and for highway construction also could offer an outlet for increasing quantities of grains.

There is need for further study of the possibilities of using surplus grain for making industrial alcohol for synthetic rubber and for other purposes. Idle capacity is available for processing around 100 million bushels of grain into industrial and butyl alcohol each year. Under present conditions and knowledge, it appears uneconomical as a disposal method for good quality grain. But increased research might make possible more economical production. Consideration also should be given to possible use of this capacity as an outlet for grain of low quality. The return that could be realized from corn used in an alcohol-butadiene program under current conditions was estimated at from 11 to 50 cents per bushel.

The Commission did not find "any encouragement for believing that, in the present state of knowledge and under current economic conditions, the use of industrial alcohol for motor fuel can be justified. It appears clear that the cost to the public would far outweigh the possible advantages."

FEED GRAIN EXPORTS AS RELATED TO THE DOMESTIC PROBLEM

Traditionally the United States has been a large exporter of feed grains. During fiscal year 1956, feed grain exports of 8.5 million short tons were valued at \$415 million and were equal to 6.4 percent of United States production. During fiscal year 1955, feed grain exports were 4.6 million short tons, valued at \$263 million and equaled 3.7 percent of production. United States exports of feed grains for fiscal year 1957 are estimated at 7.0 million short tons, about 18 percent below 1956.

An estimated 11 million acres were required to produce the feed grains exported by the United States in fiscal 1956, and an additional 5 million acres of feed grains were required to produce the livestock products exported in 1956. The total feed grain acreage used in the production of both grain and livestock exports represents 11 percent of the total United States acreage of feed grains for the year. The combined volume of feed grain and livestock product exports, and the percentage of land in feed grains used for production for export, has varied from year to year because of substantial variation in world import requirements. United States exports of feed grains in recent years have accounted for about half of the total world feed grain exports.

TABLE 10.—*United States acreage used in production of feed grains exported during fiscal years 1951-56*

[Thousand acres]

Grain	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57 ¹
Corn.....	2,349	3,121	2,784	2,145	3,047	3,580
Oats.....	129	126	113	443	759	816
Barley.....	1,154	1,352	659	1,530	3,778	2,276
Sorghums.....	3,879	683	454	1,743	3,858	1,336
Total.....	7,511	5,282	4,010	5,861	11,442	8,008

¹ Based on preliminary estimate of 1956-57 exports.

After two-thirds of total United States exports of feed grains move to European countries, about a fifth of Asian countries and most of the remainder of neighboring countries in the Western Hemisphere.

TABLE 11.—*Destination of United States exports of feed grains by percent of total, fiscal years 1952-56*

[Percent]

Fiscal year	Western Hemisphere	Europe	Africa	Asia	Oceania	Total
1952.....	12	63	1	24	(1)	100
1953.....	10	62	6	22	(1)	100
1954.....	26	58	(1)	16	(1)	100
1955.....	10	71	(1)	19	(1)	100
1956.....	6	82	(1)	12	(1)	100
1952-56 average.....	13	67	1	19	(1)	100

¹ Less than 0.5 percent.

During fiscal year 1955, about 25 percent of all United States exports of feed grains were shipped under special export programs financed in part or whole by the United States Treasury. During fiscal year 1956, this portion was 59 percent. For the year ending June 30, 1957, it is estimated at 55 percent. It must be pointed out, however, that even ordinary commercial exports must usually be subsidized in one manner or another in order to compete at world-market prices.

Although the United States share of world feed grain exports—now about half—is not likely to change much, there is reason to believe that total world exports will increase in future years, thus allowing eventual expansion in the export outlets for United States feed grains.

Increased population, gains in economic development, and rapid urbanization in many countries of the world are expected to enlarge greatly the demand for meat and other livestock products. Such anticipated developments, although having limited effect on the immediate outlook for United States exports are, nevertheless, of some importance in the consideration of a long-range program for feed grains. As foreign requirements for imports of feed grains and livestock products increase, the competitive position of United States commodities on world markets will continue to be a factor in determining the volume of United States exports.

TABLE 12.—United States feed grain exports, fiscal years, average 1935-39, annual 1946-57¹

Fiscal year ²	Corn	Oats	Barley	Grain sorghums	Total
	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 short tons
Average 1935-39.....	37,880	4,544	9,707	160	1,371
1945-46.....	17,040	21,280	9,240	2,501	1,109
1946-47.....	119,120	23,380	16,007	18,860	4,622
1947-48.....	41,320	20,790	24,127	12,800	2,427
1948-49.....	93,480	25,130	27,674	34,480	4,649
1949-50.....	113,320	15,610	23,987	28,120	4,786
1950-51.....	119,000	6,816	39,994	80,729	6,661
1951-52.....	84,320	4,686	31,034	74,087	5,255
1952-53.....	126,080	4,130	37,054	11,603	4,811
1953-54.....	111,080	3,479	18,573	8,360	3,846
1954-55.....	81,720	15,400	43,447	35,040	4,558
1955-56.....	123,710	29,082	103,889	72,722	8,459
1956-57 ³	147,000	29,000	66,000	29,000	6,976

¹ All export data include feed grain byproducts and derivatives.² July 1 through June 30.³ Preliminary estimates.

V. LONG-RANGE OBJECTIVES OF A FEED-GRAIN PROGRAM

PRODUCTION

The level of production should be consistent with:

(a) Adequate incomes for farmers who produce feed grain and livestock.

(b) Optimum use of resources.

(c) The freely expressed desires of consumers.

With rising levels of living and with ample agricultural resources, per capita consumption of livestock products could increase gradually from present levels. Although improved efficiency of feeding would contribute to larger livestock output, feed-grain requirements could be expected to increase, particularly in the longer future after present stocks are absorbed into consumption. Increasing population, increasing per capita utilization, and some increased opportunity for exports provide considerable room for expansion, over a period of time, in the feed-grain-livestock economy.

CARRYOVER

Reserves of feed grain should be at levels which reduce the necessity for sharp year-to-year fluctuations in the livestock population, such as have been experienced previously. With an expanded livestock population and with better storage facilities, reserve stocks should be higher than they were before the inauguration of Government storage programs. Stocks should be lower than they have been during the last several years.

Reserve policy should be based relatively more on the need for stocks than in the past, when size of the carryover was determined largely as a result of price-support operations.

For the next 5 years, if the carryover for all feed grains combined should exceed 30 to 40 million tons or should fall much below 10 million tons, this would be a cause for concern. Variations within those limits would probably be manageable.

UTILIZATION

Utilization of feed grain should, as nearly as possible, be in accordance with the freely determined decisions of individual persons. Government programs for the utilization of feed grain can be important at a time of drought, at a time of temporary surplus, or during a national crisis such as war. When Government-owned stocks are needed in the market to meet requirements and to prevent a sharp decrease in livestock production, sales should be made at reasonable price levels.

PRICES

Returns from feed grain should be such as to result in production of supplies adequate for the gradual increase in production and consumption of livestock products which will probably be desired by consumers. Prices of feed grain should not be so low as to result in depressed incomes to feed grain producers or as to unduly stimulate production of livestock. Prices should not be so high as to overstimulate production of feed grains or work a hardship on livestock producers who buy feed.

Livestock prices should be such as to result in appropriate levels of income for livestock producers and assure a reasonably steady flow of livestock products to the market.

The economic factors involved are too complex to permit the setting up of specific price objectives, either as actual prices or as percent of parity, for producers either of feed grain or livestock products. Prices should be cushioned against excessive fluctuations which serve no useful economic purpose. On the other hand, prices should be permitted to adjust themselves so as to assist in the needed allocation of resources.

INCOMES

Incomes to producers of feed grains and livestock products should, if possible, be at a level comparable with incomes of other persons supplying similar inputs of labor, management, and capital. No single satisfactory statistical measurement of such a level has been developed.

Farmers themselves are in a good position to make this measurement individually, for their own special circumstances, and to make decisions in accordance with their own judgments.

ROLE OF GOVERNMENT

The role of Government should be to perform those services which by general agreement need doing but which farmers cannot individually do as well for themselves. This includes programs (1) to promote and maintain a high level of economic activity without creating inflationary forces; (2) to provide grain storage, as needed, for the purpose of stabilizing prices and stabilizing livestock numbers; (3) to assist in marketing livestock products, when done constructively, during temporary gluts; (4) to assist in exporting feed grains and livestock products; (5) to exercise helpful influence in the allocation of resources; (6) to find new industrial uses for feed grains and livestock products.

This list is not intended to be complete. It is generally agreed that the Government should carry on many other activities, not only in the field of agriculture, but in other areas. But to what extent Government should regulate economic life is a question not resolved. Traditionally, we in the United States have followed the policy of relying mainly upon private initiative in economic affairs. But we have never followed a "hands off" policy, and no such policy is now proposed. The Government should have a positive program to promote steady growth and prosperity throughout the economy. Such a program obviously must include measures to help give our agriculture greater stability.

RELATION OF FEED-GRAIN PROGRAM TO OTHER PROGRAMS

Feed-grain producers should not be expected to solve their own supply problems and as well the supply problems shifted to them by producers of the basic commodities. Likewise, feed-grain producers should not expect a level of price supports that would sharply increase the costs to farmers who buy feed.

The feed-grain-livestock economy is interdependent with respect to its various elements, and it is also interdependent with other segments of the agricultural economy. There can be no feed-grain program that is unrelated to the livestock enterprise as there can be no feed-grain-livestock policy apart from overall agricultural policy.

VI. ALTERNATIVE PROGRAMS IN PURSUIT OF OBJECTIVES

This section describes and discusses various alternative approaches that could be taken in revising present acreage-allotment and price-support programs for feed grains. The term "feed grains" as here used includes the four grains primarily used for feed—corn, oats, barley, and sorghum grains. Generally speaking, the various feed grains are freely substitutable in their major use as feed. Other crops that are important sources of concentrate feed, such as soybeans, flaxseed, and rye, are not included.

In not including these crops that are additional sources of feed significant effects on total supply of feeds may be overlooked. For instance, an acre in the central Corn Belt that might be shifted from oats to soybeans would produce about 50 percent more feed nutrients in the form of soybean meal. On the other hand an acre shifted from corn to soybeans would produce about 35 percent less feed nutrients. Such shifts in the use of the land would also have far-reaching effects on the supplies and prices of both oilseed meal and oil from soybeans and flaxseed. The reduction in the acreage of feed grains since 1953 in the Corn Belt and Lake States (about 2.5 million acres) has been more than matched by increases in the acreage of soybeans. If midwestern farmers should be induced to curtail further their acreages of feed grains, it is likely that they would continue the shift to soybeans unless programs were revised or other programs instituted to divert cropland into other uses.

GENERAL

Various legislative authorities (the Agricultural Adjustment Act of 1938, as amended, the Agricultural Act of 1949, as amended, and the

Agricultural Act of 1956) currently are available for use in supporting the prices of agricultural commodities, in providing the authority necessary for the imposition of acreage allotments and marketing quotas, and in taking other steps aimed at aligning production with requirements. With respect to price support, commodities are classified by law into three groups—basic, nonbasic mandatory, and other nonbasic. General authority is available for the imposition of acreage allotments; authority for the imposition of marketing quotas is limited to the basic commodities, excluding corn. As a basic commodity, however, corn is required to be supported on the basis of a flexible formula, within the support price range of from 75 to 90 percent of parity. The legislation draws an important distinction between corn and other feed grains; the price support of feed grains other than corn is discretionary at from 0 to 90 percent of parity. The Soil Bank Act (title I of the Agricultural Act of 1956) specifies corn in the commercial corn-producing area, as a basic commodity, as eligible to participate in the acreage-reserve program. Excluded from the acreage-reserve program are feed grains other than corn and corn outside the commercial area.

In addition to the present program, variations and new approaches which are considered in this report embody (1) the extension to all feed grains of the provisions now applicable to corn, (2) the application to corn of the provisions now applicable to other feed grains, (3) the development of completely different programs, applicable to all feed grains, and (4) the abolition of current provisions applicable to all feed grains, but with no substitute—that is, no controls and no price support.

BASIC ASSUMPTIONS

The following basic assumptions generally are applicable to the programs or approaches discussed:

(a) The general level of economic activity prevailing in 1957 is assumed to continue without material change in either direction.

(b) Programs of price support for commodities other than feed grains generally are assumed to continue in much the same form as at present, and at levels approximating those currently announced or in effect.

(c) Most of the programs are described in terms of a "range" of price support. However, to simplify comparison of the various programs, a specific level of price support has been used in some analyses.

(d) Generally, the consumption of livestock products and of feed grains under the programs considered would reflect at least projected population increases. In effect, this means that consumption per capita of these commodities would be continued at least at the current level.

(e) Excess stocks held by the Government at the start of any program would be disposed of, in an orderly fashion, and over a period of time, in a manner that would not seriously interfere with attainment of program objectives. Various disposal programs now in effect would be continued although they might take a different form. The volume of surplus operations would depend upon each situation as it developed.

(f) As provided by current law, the acreage-reserve program of the soil bank would be continued through the 1959 production year. A possible change in present provisions is introduced in section C, to provide for one form of a program of moderate price supports without allotments. The conservation reserve program would be continued throughout the intermediate future, the signup terminating with the 1960 production year. The conservation reserve contracts entered into with producers during the 5-year period 1956-60 are to be carried out during the period ending not later than December 31, 1969, except that contracts for the establishment of tree cover may continue until December 31, 1974.

(g) Where a reduction in the acreage of feed grains is accomplished by other than the soil-bank program, an increase may be expected in soybean and flaxseed acreages.

(h) While most of the price data presented here are on a bushel basis, it is expected that beginning in mid-1958 grain prices will be on a hundredweight basis.

COMPARISON OF RESULTS

Various programs can be compared from many different standpoints, as the consequences of each are highly complex. As a rule, the results given most attention here are the effects on production, consumption, and prices of feed grains, on incomes to feed grain and to livestock producers, and on extent of operations of the Government and their costs. The degree of control of producers implicit in each program also will be mentioned. Results of secondary importance, such as the influence on land values, are not considered.

Programs are evaluated with respect to operations in 1958, with additional comments and some analysis for the intermediate future, 4 or 5 years ahead.

A. CURRENT PROGRAM FOR CORN AND OTHER FEED GRAINS

1. *Corn*

The Agricultural Act of 1949, as amended, provides for mandatory support to prices of corn. The minimum support level, within the range from 75 to 90 percent of parity, depends upon the relationship of the total supply to a defined "normal supply."

Price support of 1957-crop corn has been established at a minimum of \$1.36 per bushel, equivalent to 77 percent of parity at the time of announcement. Support is carried out through either direct loans to producers or purchase agreements. Eligibility for full price support in the commercial corn producing area is contingent upon the producer's planting within his corn acreage allotment. Price support to noncooperators in the commercial corn producing area is discretionary and had not been made available as of July 10. Corn producers outside the commercial corn producing area are eligible for price support at 75 percent of the level to cooperators in the commercial corn area.

The parity price for corn is determined in accordance with the Agricultural Act of 1949, as amended. Transitional parity, first effective for corn in 1955, will continue in effect in 1957 and 1958. By 1959, modernized parity will become effective for corn. As of May

15, 1957, calculations of these two parities were transitional \$1.82 per bushel; modernized \$1.72 per bushel.

The corn-acreage allotment in the commercial corn-producing area established pursuant to the provisions of the Agricultural Adjustment Act of 1938, as amended, is based on producing an amount which together with the corn produced outside the commercial area, carry-over and imports, will make a normal supply available for marketing. For the 1957 crop the allotment is 37.3 million acres.

The acreage reserve program of the soil bank provides a special means through which corn producers may reduce their corn acreage below the allotment. For 1957, sign-up in this program approximates 5.2 million acres of the 37.3 million acre allotment.

2. Feed grains other than corn

The Agricultural Act of 1949, as amended, provides for price support on a discretionary basis for feed grains other than corn. The range of support permitted is from zero to 90 percent of parity, with the specific support level made at the discretion of the Secretary after consideration of eight factors specified in section 401 (b) of the act. For the 1957 crop these feed grains are being supported at 70 percent of their January 15, 1957, parity prices.

During the life of the conservation reserve program of the soil bank, some reduction in acreage of feed grains other than corn will be realized. Participation in the conservation reserve program is expected to increase from year to year.

The establishment of a soil bank base for farms in the 1958 acreage reserve program will require participating farms to reduce production of soil bank base crops to the extent they place allotment acres for basic crops in the acreage reserve. The net reduction in tilled acreage on the participating farms could result in some reduction of feed grains and other nonallotment crops on these farms.

3. Anticipated results of current programs

Many factors influence the production and utilization of corn and other feed grains, all of which must be considered carefully in evaluating the probable results of the current program.

The size of the allotment in the commercial corn-producing area will have some influence on participation both in the price support and corn acreage reserve programs. Taking this and other factors into consideration, some general conclusions have been drawn as to the probable results of the current program in 1958 and in the intermediate future through the 1961 crop year. Even with anticipated increases in average yields, it is expected that the acreage allotment in the commercial corn-producing area would increase slightly in the next few years. On the basis of projected supply estimates, the 1958 acreage allotment of corn for the commercial corn-producing area might be slightly larger than the 1957 allotment, and the allotment for subsequent years might gradually increase through 1960.

A modest increase in the allotment would tend to increase compliance. It also would increase participation in the acreage-reserve program if adequate program funds were available. However, funds for the acreage-reserve program in 1958, which as of July 10 were yet to be appropriated, could limit the corn acreage placed in the program probably below the 5.2 million acres signed up for 1957.

The CCC disposal program combined with the acreage-reserve program and slightly increased consumption would probably reduce the corn carryover by the end of the 1959-60 crop year to substantially below the 1,450 million bushels now expected at the end of the 1956-57 year.

Most of the indicated improvement in the corn situation would be directly traceable to the acreage reserve. With the expiration of that program at the end of the 1959 crop year, corn acreage formerly in it would again be available for corn. This would result in a substantial increase in production in 1960 and 1961. Depending on the rate at which yields per acre increase, production then would probably at least equal disappearance and quite possibly would be a little larger. In the latter event stocks would again accumulate in CCC hands.

The level of the statutory minimum support price for corn will follow the supply situation. With the total supply in 1958 and 1959 smaller, the minimum support would likely be appreciably above 75 percent of parity. The support level as a percent of parity would decline beginning in 1960, so that by 1962 the minimum support would be near the statutory minimum of 75 percent.

Production of feed grains other than corn will gradually increase as a result of higher yields and, after the expiration of the acreage reserve program, possibly due to larger acreage also. However, expected larger participation in the conservation reserve program would keep production at least partly in check. Much of the net increase in production would go into increased consumption. It is assumed that under a continuation of the present program livestock numbers would gradually increase, the number of animal units possibly rising 10 million or so by 1962 from the 163 million in 1956-57. This rate of increase in animal units is less than indicated by population growth, but the increasing production per animal unit probably would result in about as much meat and livestock products per capita as at present.

As a result of the acreage-reserve program, and in spite of improved practices resulting in higher yields, it is estimated that total production of all feed grains would gradually decline from the 130 million tons produced in 1956-57 to a low of perhaps around 124 million tons in 1958-59. However, after the expiration of the acreage-reserve program in 1959, it appears that the total production might increase by perhaps as much as 10 million tons by 1961.

4. Effects of current programs

If the current corn and feed-grain program were continued, it might have the following effects:

(a) Prices of feed grains generally would stay above the price level which would prevail under free market conditions.

(b) The price-support program would tend to limit, as in recent years, quantities of feed grains used for livestock production. If demand for livestock products continued near current levels, their per capita production would likely be relatively stable for the next few years.

(c) Stocks of feed grains would continue in surplus with the bulk owned by CCC. Disposal of such stocks would continue to involve large costs.

(d) With a continuing large supply, the corn acreage allotment, while increasing, will remain relatively small; this would continue to discourage participation and minimize the effectiveness of the allotment program in adjusting production.

(e) The entire responsibility for adjustment of feed-grain production, except for the effect of the conservation reserve program, would fall upon the corn producer in the commercial corn-producing area.

(f) The minimum price-support level for corn as a percentage of parity would tend to increase through 1959 and would then decline.

(g) While the acreage reserve program is in effect some reduction in feed grain stocks would occur. Thereafter, stocks would probably again accumulate, with most going to CCC.

B. ACREAGE ALLOTMENTS AND MANDATORY PRICE SUPPORT FOR ALL FEED GRAINS

1. General

The current legislation treats corn materially differently from the other feed grains. The major differences in the basic legislation are as follows:

	Corn	Other feed grains
Price support.....	Mandatory at 75-90 percent of parity.	Discretionary at 0-90 percent of parity.
Acreage allotment.....	In effect each year.....	None.
Soil bank.....	Acreage reserve and conservation reserve.	Conservation reserve only.

One alternative would to make the provisions of the corn program applicable to all feed grains. Under this approach—

(a) A national and farm (and possibly State and county) feed-grain allotment would be established.

(b) Price support for each feed grain would be mandatory within a minimum and maximum range as a percentage of parity.

(c) Eligibility for price support on feed grains would be conditioned on compliance with the feed-grain allotment, and

(d) The acreage reserve program would be extended to all feed grains, on an optional basis, through the 1959 crops.

2. Major features and assumptions.

Under a program of this type, several changes in the current corn legislation would be required for the purpose of providing greater flexibility in determining the support level and allotment. In this analysis it is assumed that the following provisions would be made:

(a) The national feed-grain allotment would be established at a level equal to the normal supply less the carryover and imports of feed grains, but not less than the minimum level discussed below.

The normal supply would be equal to domestic disappearance plus exports of feed grains plus an allowance for carryover. This analysis assumes that the allowance for carryover is 15 percent, the same as now in effect for corn. On the basis of the estimated disappearance the 1958 normal supply would be around 147 million tons including a carryover allowance of about 18 million tons.

Only one feed-grain allotment would be established for each farm. This allotment would cover the acreages of corn, oats, barley, and sorghum grains.

Under the normal supply figure assumed, the 1958 national feed-grain allotment would be only about 75 percent of the usual acreage. A sharp reduction of this size would materially affect participation. To cushion the impact and to spread the required reduction over more than 1 year, a minimum allotment could be established for the first year (1958). In this analysis such a minimum is assumed for 1958 at not less than 85 percent of the usual acreage, that is the base period acreage adjusted for the acres diverted under the allotment and soil bank programs and for other purposes. It would be around 133 million acres. A national minimum would not be in effect after 1958 and the 1959 allotment would likely be less.

Allotments would be applicable to all areas and to all feed-grain farms. However, some provision might be made to limit the application of the feed-grain allotment to the major feed-grain producing areas by designating a commercial and noncommercial area, with little effect on the results. This would minimize the effect of the program on small farms in selected areas, and reduce administrative expenses.

Another variation would provide for the establishment of a separate corn acreage allotment within the total feed grain allotment.

(b) Support prices on all feed grains would be mandatory within the range of 60 to 90 percent of parity (rather than 75 to 90 percent as now in effect for corn, and 0 to 90 for other feed grains) with the actual level determined by the Secretary in consideration of the eight factors specified for the other nonbasic commodities in section 401 (b) of the Agricultural Act of 1949, as amended, and enumerated on page 77 of this report. For this analysis, it is assumed that the level of support within this range would average near 70 percent of parity for several years.

(c) The soil-bank program would be as follows: Acreage reserve payments would be available to producers for reducing their feed-grain acreage below their allotment for the 1958 and 1959 crops, the final years of the acreage reserve program. This would differ from the present program in that acreage formerly in oats, barley, and sorghum grains would become eligible. The payment rates would vary by areas and farms as currently in effect under the corn program. In addition, payments would vary by the kind of feed-grain acreage placed in the acreage reserve. This variation in rate by kind of feed grain is to encourage participation in the acreage reserve for all types of feed grains. Without such variation only those producers producing feed-grain crops having a low net income or low value per acre would participate. However, this feature would pose a number of administrative problems.

The conservation reserve program of the soil bank would continue to be available each year with producers eligible to contract through 1960. Substantial acreage would still be under contract after 1960, due to the length of the contracts.

It is extremely difficult to forecast the extent to which producers would participate in the soil bank and the effect such participation would have in reducing production of feed grains. This complicates the problem of estimating the cost of the expanded soil-bank program. Nevertheless, it would appear that (1) the total cost under the feed-grain acreage reserve program would be materially above the cost under the present corn acreage reserve program, and (2) the cost under the conservation reserve would be somewhat lower, the amount

depending on the extent producers shifted to the acreage reserve program.

The increased cost under the acreage reserve program would be due to (1) including oats, barley and sorghum grains, together with corn in the noncommercial area, in the program, and (2) providing for one feed-grain allotment, which would put corn producers in the commercial area in a better position than under the present program to place acreage in the acreage reserve. In fact, if a producer's feed-grain allotment consisted entirely of corn, the 1958 allotment under the program would be 85 percent of usual. The 1957 corn allotment under the current program is only about 60 to 65 percent of usual.

For this analysis it was assumed that sufficient funds would be made available to permit an effective soil bank operation of the size indicated. Unless such increased funds were provided, it is doubtful that the allotment would be effective in reducing production to desirable levels.

3. *Effects*

(a) *Production and stocks.*—Production of feed grains in 1958 and 1959 would be somewhat smaller than would occur if the current program were continued. This is based on the assumption that, under the inducement of price support and acreage reserve eligibility, a significant number of feed-grain producers would comply with their feed-grain allotments for these reasons: (a) Generally, it can be expected that producers of feed grain for sale are more likely to comply with an allotment program than those who produce for use on the farm. In 1956 about 66 percent of the barley and 76 percent of the sorghum grains were produced for sale compared with 36 percent for corn. (b) The feed grain allotment is only moderately below the usual acreage. Thus, many producers need make only a relatively small reduction in their anticipated planting in order to comply with the feed-grain allotment. If the minimum allotment assumed is not put in effect, compliance would be less. (c) Many producers would find it advantageous to reduce their acreage of feed grains below their allotments to be eligible for payments under the acreage reserve program. (d) The expected increases in acreages contracted under the conservation reserve from about 7 million acres in 1957 to about 20 million acres should result in some reduction in the acreages devoted to feed grain by 1959.

These anticipated acreage reductions would be offset in part by increased acreage on those farms not complying with the program (allotments and soil bank) and by increased yields on the remaining acreages devoted to feed grains.

Reduced acreage of feed grains could cause surpluses to develop in other commodities such as soybeans.

On basis of these assumptions, the estimated total acreage of feed grains would be around 138–140 million in 1958 and 1959, or about 10 percent below the 1954–56 average. Such acreages would be about 5 percent above the assumed feed-grain allotment.

Feed grain production in 1958 and 1959 would be only about 5 percent below the 1954–56 production, or approximately 120 million tons. Production would not decline as much as acreage due to the trend in yields and because, generally, the poorer yielding land would be placed in the soil bank.

If disappearance were 128 million tons during the 1958-59 feeding year and 130 million tons during 1959-60, the carryover stocks would decline about 15 million tons during this 2-year period. Although production is about 17 to 18 million tons below disappearance, the carryover would decline less as a result of imports. Most of the decline in carryover stocks would be due to exports out of CCC stocks. Stocks at the beginning of the 1960-61 feeding year might be about 33 million tons.

As a result of increased allotments and the ending of the acreage reserve program, production in 1960-61 would be somewhat greater than in 1958 and 1959. The acreage likely would be below the 1954-56 average, but yields higher.

Under these assumptions it appears that acreage in 1960 and 1961 might be around 145 million and total production around 130 million tons. Production of this size would be slightly less than disappearance. Thus, overall stocks would likely continue to decline slightly during 1960 and 1961.

Much of the decline in stocks of feed grains during this period would be due to the larger quantities required for feed.

(b) *Prices.*—Prices received by farmers for feed grains would average slightly lower than for recent years. This would be due to (a) the lower support rates for corn (averaging around 70 percent of modernized parity compared to the 77 to 90 percent of old or transitional parity for recent years) and (b) the ineligible feed grains produced on farms not complying with acreage allotments. After carryover stocks were reduced to reasonable levels and production is near domestic requirements, farm prices might average somewhat higher than in 1958 and 1959.

(c) *Farm income.*—Farm income of producers participating in the programs who sell feed grain as grain would be somewhat lower during 1958 and 1959 than under present programs. This is attributable to the lower volume of production and the lower corn support rate. The payments made under the soil bank as well as the income received from the acreage shifted to other crops not subject to acreage limitations would offset, to a large extent, the decline in net income from feed grains for the producers complying with the allotment and soil bank program.

Farm income of producers not complying with the program and producing feed grains for sale would likely be lower during 1958 and 1959 than under the present program, the amount depending upon the extent that market prices under this program would be lower than under the current program.

After supplies are in balance with demand and prices rise above the support level, farm income would likely be above current levels or those anticipated for 1958 and 1959 under the current program.

The effects of this proposed program on the income of feed grain producers who do not sell grain would be relatively small, as indicated below.

(d) *Livestock production and income.*—The program would likely have a small effect on increasing livestock production and reducing livestock income for 1958-61 as compared with the current program. Livestock production would be stimulated moderately by 1959 because of the slightly lower feed grain prices. By 1961-62 the total number of grain-consuming animal units might be as much as 175 million

compared to the estimate of 173 million if the current corn and feed grain programs were retained. The relatively moderate increase, with a larger population, would cause little change in livestock prices. Income of livestock producers who purchase most of their feed would not be affected materially as feed grain prices would be lower and volume of sales larger. Income of livestock producers who raise their own feed would be slightly lower.

(e) *Government activity.*—Government loan and acquisition operations would be reduced. This would occur under the assumed conditions because (a) the quantity placed under loan and acquired by CCC would be lower as production fell below total disappearance. In recent years production has exceeded domestic disappearance with the result that excess production was acquired by CCC. And (b) the reduction in the carryover stocks would come out of CCC stocks since the carryover of "free supplies" is at a minimum. With production being about equal to domestic requirements, CCC stocks would continue to be used for export. The imposition of allotments would tend to restrict production for sale to the Government.

Under conditions assumed, it is likely that CCC would carry about half of the 1961-62 carryover stocks, a much smaller proportion than in recent years.

Government activities with respect to establishing acreage allotments would be increased. A much larger number of farms would be subject to acreage-control regulations, therefore administrative costs would be greater. In addition, for crops not subject to acreage controls, such as soybeans, support activities might increase.

4. *Summary of effects*

(a) The responsibility of adjusting feed grain production to market demand would be placed on all feed producers rather than on the corn producers in the commercial corn area.

(b) Acreage diverted under the feed-grain-allotment program would be available for the production of crops not subject to acreage controls such as soybeans and flaxseed. Alternatively much of this acreage could be placed in the conservation reserve.

Farmers who planted below their allotment could place such acreage in the acreage reserve if they wished to do so. Under conditions assumed, producers would not be required to participate in the soil bank to be eligible for price support.

(d) Much of the recent increase in feed-grain acreage resulted from diversion from allotment crops. A feed-grain allotment program would allow at least part of such acreage to be removed from feed grains. It could also prevent any further diversion to feed grains from allotment crops, either from changes in allotments or from slack acres.

(e) The Secretary would have wider discretion in determining the support price for corn. This would result because, in determining the specific support level within the support price range, he would not be restricted by a fixed supply-percentage relationship as under the current program; he would be free to establish the specific support level at any point within the range after consideration of the eight factors enumerated. The wider range of price support, 60 to 90 percent of parity, assumed in this analysis, would allow more discretion than now in determining the corn support.

On the other hand, the Secretary would have less discretion with respect to other feed grains, support of which would be mandatory.

(f) Government controls would be extended to all feed grains in all areas and to more farms. However, producers would be free to shift acreages between various feed-grain crops.

(g) Feed-grain production and livestock feed requirements would be more nearly balanced. During the period of adjustment, operation of the program would result in reducing the income of those feed-grain producers who sell grain for cash. But the reduction would be offset in part by larger acreage reserve payments in 1958 and 1959 and additional income, if any, from increased production of crops not under control. Lower feed-grain prices would encourage expansion of livestock production, and the increase would be relatively small and it would have little adverse effect on prices and incomes from livestock.

(h) It would reduce Government loan, storage, and disposal activities, the extent depending on the effectiveness of the program in reducing carryover and production. At the same time, it would result in higher administrative costs as a result of extending acreage allotments to all feed grains and would materially increase the cost of the 1958 and 1959 acreage reserve program. The overall cost in 1958 and 1959 would likely be much larger than under the current program, but after 1959 it would possibly be somewhat smaller.

(i) Production of crops not under acreage control, such as soybeans, would likely increase; and if their prices were supported the cost of support could be sizable.

C. NO ALLOTMENTS AND MODERATE PRICE SUPPORT FOR ALL FEED GRAINS

This alternative program would apply to corn the kind of support currently provided for the other feed grains. There would be no acreage allotments for any feed grain and price support would be mandatory for all four feed grains (corn, oats, barley, and sorghum grains) at moderate levels that would provide some stabilization of year-to-year supplies for livestock producers but would result in no excessive net accumulation of stocks over time in Government hands. For this discussion a support level of 60 to 70 percent is assumed. The actual level need not be the same for each feed grain; one possibility is that support be first expressed for corn, and the rate for each of the other feed grains be adjusted according to the difference in feeding value, historical price differentials, relative supplies and other factors.

It may be assumed that in the absence of acreage allotments corn would not be classed as a basic crop. Under terms of present legislation for the soil bank, corn would no longer be eligible for the acreage reserve. The only program available to feed grain producers to aid in adjusting production would be the conservation reserve.

By enacting new legislation, it would be possible to open the acreage reserve to corn, or to other feed grains, through use of a base acreage. The general features of this type of program are reviewed in section F of this report.

The program would operate uniformly, without regard to any special commercial areas. The mechanics of operation would be similar to those under the current programs for feed grains other than corn.

Probable effects

Changes in acreage and production of feed grains would be governed largely by (1) the lower support price for corn and possibly for other feed grains; (2) ending of the acreage reserve for corn after 1957; (3) participation in the conservation reserve.

In 1958, with no acreage reserve for corn, some increase in corn acreage might be expected. Acreage of other feed grains might decline as a result of participation in the conservation reserve and change in acreage reserve program for other basic crops. The overall effect would be some increase in total feed grain production.

In the intermediate future—1959-61—corn acreage under this program would likely remain near the 1958 acreage. The acreage of other feed grains might decline somewhat further as the conservation reserve continued to expand. The extent of these changes in acreage, and the changes in feed production which would result, would depend to a considerable extent on the level of support on their profitability relative to alternative crops such as soybeans and on the amount of participation in the conservation reserve. If all feed grains were to be supported at 70 percent of parity the incentive to large acreages and high yields would not be much less than now, as only the support level for corn would be reduced below the current support level. (Other grains are currently supported at 70 percent.) If, on the other hand, all feed grains were supported at 60 percent of parity there would eventually be a greater tendency to reduce acreages, with a larger acreage placed in the conservation reserve, and at the same time there would be less incentive to increase yields.

A better balance in the feed grain-livestock economy encouraged by the changed support program would tend to cause producers to adjust production of feed grains more to livestock needs. Farmers would give more care to their production plans for both feed grains and livestock, and they would have less incentive to produce for Government storage.

With the lowering of price supports to 60 to 70 percent of parity, prices of feed grains, especially corn, would decline somewhat from current levels. The amount of decline would depend both upon the production response to the lower support level and the specific level of support, as well as upon the availability of supplies at the time the support levels were changed. (Table 13 indicates the approximate dollar-and-cents level of support at 60 and 70 percent of parity.)

Prices would not necessarily drop to the new support level, especially if support were near the lower limit of the 60- to 70-percent range. Prices would be determined to a greater extent by supply and demand conditions. They would be free to fluctuate to a greater extent than with the current support levels. The support would, nevertheless, serve as a break against disastrous price declines.

The extent of Government activity in acquiring and releasing stocks also would depend partly upon the level at which prices were supported. Likewise, the costs of the program to the Government would depend upon the support level. At 70 percent of parity some stocks might build up, but at 60 percent the tendency to acquire Government stocks would be slowed considerably or, over a period of time, eliminated. This would result in a corresponding decrease in program costs to the Government. Apart from the specific support level, administrative costs would be reduced by virtue of having no allotment program for corn.

TABLE 13.—*Comparisons of price supports on feed grains at 60 and 70 percent of May 15 parity, and at the equivalent of 60 and 70 percent support on corn*

Item	Unit ¹	Parity, May 15, 1957			Equivalent of 70 percent of the parity price corn ²		Equivalent of 60 percent of the parity price of corn ²	
		Full	70 per cent	60 per cent	Per 100 pounds	Per gushel	Per 100 pounds	Per bushel
Comparisons based on transitional parity for corn: ³								
Corn.....	Bushel.....	\$1.82	\$1.27	\$1.09	\$2.27	\$1.27	\$1.95	\$1.09
Oats.....	do.....	.876	.61	.53	2.04	.65	1.76	.56
Barley.....	do.....	1.36	.95	.82	2.04	.98	1.76	.84
Sorghum grain.....	100 pounds.....	2.66	1.86	1.60	2.16	-----	1.85	-----
Comparisons based on modernized parity for corn: ³								
Corn.....	Bushel.....	1.72	1.20	1.04	2.14	1.20	1.86	1.04
Oats.....	do.....	.876	.61	.53	1.93	.62	1.67	.53
Barley.....	do.....	1.36	.95	.82	1.93	.93	1.67	.80
Sorghum grain.....	100 pounds.....	2.66	1.86	1.60	2.03	-----	1.77	-----

¹ Except as shown for equivalents in terms of hundredweight.² Adjusted for relative feeding value as follows: Oats and barley, 90 percent of corn; sorghum grain, 95 percent.³ Modernized parity for grains other than corn.

Livestock production in the United States is influenced by the availability of feed, particularly feed grains. When large feed crops are produced, farmers are encouraged to raise more livestock unless more advantageous alternatives are available for the feed. To the extent it avoids price incentives for overproduction, this program for feed grains would have a salutary effect on the livestock economy over a period of time. (There are no price supports on livestock or livestock products, except some dairy products.)

This alternative feed grain program would reduce total cash receipts from sale of feed grains, particularly from corn. The moderate reduction would be partially offset by increases in efficiency of operation. As in some of the other programs, income from the soil bank also would be offsetting. But as less than 40 percent of feed grain production goes into commercial channels as cash grain, the net price and income effects of the program should be assessed largely on the basis of the income from livestock.

During 1958, it is expected that incomes from livestock would differ little from the present, since livestock production the first year of operation would not be much greater than otherwise.

In the intermediate future, lower costs for feed grain would result in increased rates of feeding to livestock, which would mean added output of livestock and livestock products.

Production of poultry might rise somewhat faster than population, allowing a slight gain in supplies of poultry products per person. Meat supplies per person might exceed those of 1957.

It might be necessary to avoid excessive incentives for increases in milk production by adjusting support prices for dairy products when feed grain supports were lowered.

The increased livestock production would likely result in some reduction in livestock prices, the extent depending on the rate of increase.

Effects of the feed grain program on livestock producers' income would vary somewhat between those who produce and those who buy most of their feed. It is likely that the income from livestock enterprises would be reduced somewhat for farmers who feed their own

grain. But for livestock producers who purchase grain for feed, incomes would likely not be greatly different, as lower feed costs and increased volume would tend to offset reduced prices of livestock.

Total cash receipts from poultry would fall slightly. If dairy supports were lowered, dairy incomes would decrease. Receipts from meat animals would likely be less than in 1957, but might equal or exceed those in 1956.

Alternate: Acreage reserve on corn

If the acreage reserve were continued on corn through new legislation allowing use of a base acreage the results would be somewhat different. Production of corn and total feed grains would be less than under the program without acreage reserve just described. Prices of both feed grains and livestock would be somewhat higher, as would incomes of all feed grain producers including those who feed their grain to livestock. Little feed grain would accumulate in Government hands, even at 70 percent of parity. The acreage reserve on corn would, of course, add a cost to the Government.

Summary of effects

1. Depending on the level of support, prices and production of feed grains and livestock might fluctuate more than at present, thus tending toward less stability.

2. Support floors, though lower, would still be available to cushion drastic drops in prices.

3. There would be little, if any, additional feed grain accumulated by the Government, if support levels were near the minimum level or if the acreage reserve were extended to corn by new legislation.

4. Costs to Government would be lower because of reduced storage activity and smaller losses on any disposal programs, and would be even less in the absence of a corn acreage reserve program. However, lower costs due to ending of acreage reserve on corn would be partially offset by increased participation in the conservation reserve.

5. Feed grain and livestock production would tend to become more nearly balanced than at present, and feed grain producers would more nearly adjust their production to demand.

6. With reduced price supports, prices of feed grain and incomes to commercial feed grain producers would be somewhat lower. An acreage reserve on corn would moderate the decrease.

7. Livestock production would likely be increased in the intermediate future and slightly lower livestock prices might result. But net incomes of livestock producers might be almost as high as under current support programs, particularly for those who buy much of their feed.

D. NO ALLOTMENTS AND NO SUPPORTS

Under this alternative, all price supports and acreage allotments on feed grains would be eliminated. In this approach, feed grain producers would have no protection against price declines. This would be in contrast to the protection given producers of a number of other crops. Also, so long as those other crops remained under allotment, acres diverted from them would continue to be used largely for feed crops unless some provision were to be made under the soil bank program to prevent such diversion.

The only program available to feed grain producers to aid in adjusting production and price would be the conservation reserve. The acreage reserve would not be applicable to any feed grain, as there would be no allotment base for it.

Except as affected by their voluntary participation in the conservation reserve, farmers could plant whatever acreages of feed grains they wished.

Probable effects

The removal of direct price supports and acreage allotments from feed grains, without other means of protection, would have adverse effects on prices and incomes from feed grain and livestock. Adjustments in production to the new prices would be made in the long run, but not without causing problems for both feed grain and livestock producers.

Production of feed grains would likely increase in 1958. Thereafter, acreage and production would depend on the level of market prices relative to alternative crops and the attractiveness of the conservation reserve. Acreage would likely decline. Rising yields would probably step up production somewhat, but less than under any program of high support prices.

The long-established tendency for livestock numbers and production to adjust to the feed supply would also apply if such steps were taken. Only small adjustments in livestock production could be made during 1958, but production of all livestock and poultry could and probably would be increased in the intermediate future because of lower feed costs and the fact that the entire feed grain supply would move into the consuming market instead of partly into Government hands. Eventually, livestock production would be adjusted to the new market conditions.

The removal of supports undoubtedly would result in a lowering of prices and income for commercial feed grain producers, both in 1958 and the intermediate future.

The increased livestock production would result in lower livestock and meat prices in both the near and longer future. With reduced feed grain prices it might be necessary to reduce or eliminate supports on dairy products. For the many feed grain producers who market their grain as livestock, a lowering of livestock prices would mean lower net incomes.

If the price declines proved drastic, a number of the less efficient farms would become uneconomic.

Levels of prices and incomes might average roughly similar to those under a program of no feed grain allotments and moderate price supports without acreage reserve, if those supports were at a net balance level. The principal difference between no supports and such minimum support lies in the greater risk and instability in the former, compared with the protection against price declines, the stabilizing influence, and the aid to more orderly marketing afforded by supports. Livestock producers particularly would be affected by the instability of supplies and prices of feed grain resulting from the removal of all feed grain supports.

With no supports and no controls on feed grains, special consideration would have to be given to the disposal of CCC stocks. If stocks were permitted to enter the market during the period of adjustment,

the depressing effect on prices would be even greater. A definite pre-arranged storage and disposal policy would need to be instituted which would minimize effects on market prices.

Summary of effects

1. This type of action, by itself, without alternative means of providing feed grain producers with market assistance, would subject them to the unrestricted forces of the free market. Adjustments, initially and in the intermediate future, might be drastic.

2. Prices and production of feed grains and livestock would fluctuate more than under the current program. Livestock production would expand in the intermediate future because all feed grains produced would be fed instead of accumulating in Government hands. There would be lower prices and incomes to feed producers, and, in the intermediate future, to livestock producers as well.

3. All Government costs for price support on feed grains would be eliminated, except for disposal of current holdings and operation of the conservation reserve.

4. Producers would be reluctant to carry more than working stocks of feed grains. There would be no reserves as protection against unfavorable crop years or to meet special needs.

5. The less efficient farms would have more difficulty competing with more efficient units.

E. FIXED-SHARE BASE-PAYMENT PROGRAM

1. General description

Several alternative payment programs could be used to give direct support to incomes of feed-grain producers. In all of them, payments would be made directly to producers at a rate necessary to lift their combined return from payments and market prices to a previously named level. Payments could be unlimited, or they could be limited by being linked with acreage or marketing controls or by being restricted to certain base quantities. The program described here is of this last type; it is a fixed-share base-payment program, under which payments would be made only on a specified limited quantity of output. Major features include:

- (a) Establishment of a national feed-grain production base, broken down to State, county, and individual farm bases. The national production base would be initially established at a level representing some percentage of needed production for domestic use. The national base would be allocated to producers according to their previous production and other factors. Individual farm production bases could be converted to a base acreage if desired, by dividing by a normal yield for the farm. Once assigned, the farm production bases would represent permanent shares of the national base, except for administrative adjustments such as for new producers. A reserve of unassigned production base would be held to take care of such necessary adjustments. The national base production might be adjusted from time to time if national needs changed, but the proportionate individual farm shares would remain essentially the same. For the period considered it is assumed that the national base would be frozen at 95 million tons of feed grains.

(b) Direct payments to feed-grain producers would replace present price-supports on feed grains. These payments would be made only on quantities of production within the feed-grain base. Any excess production would not be eligible for payment but could be sold at market prices or fed to livestock. If actual feed-grain production were less than the farm production base, payment would be made only on the quantity produced. An alternative procedure would be to calculate the price-support payment on the acreage planted multiplied by the established normal yield for the farm provided the acreage planted did not exceed the base. This would be an insurance feature in years of below normal yields.

(c) Support on the base quantity could be at any percentage of parity, but as the level approached parity the cost to the Government might be prohibitive. A workable level might be around 70 percent. Compared with the present program, an equivalent level of support could be realized at a lower percentage of parity since the full target level would be achieved. In the present program prices have often averaged several cents a bushel below support, even in years of unrestricted eligibility.

(d) Storage loans at a rate that would curb severe market price fluctuations without supporting the price level would be available to assist in controlling seasonal price movements, and to stabilize feed supplies. Stocks of feed grains held by CCC would be permitted to enter the market gradually at prevailing market prices so as to permit the carryover to be drawn down to reasonable levels.

(e) In calculating feed-grain bases, the feed grains would be handled separately, but all would be combined into a single feed-grain total base for each farm. The total base might be expressed in feed units or corn equivalents thereafter. This would allow flexibility in shifting between kinds of grains.

2. Price effects

With a fixed-base-payment program, market prices would be free of direct supports and would be at levels that would more nearly reflect supply and demand conditions. The feed-grain producer who sold his grain would receive the free market price for everything he sold. In addition he would receive a payment on the part of his production within his base when prices were below the support level. The payment would bring the unit value on this quantity up to a given level of parity. This resembles a 2-price plan with a lower price for output beyond the base, but with only 1 price in the market.

A feed-grain producer who fed all that he produced would get his payments on his base quantity. A livestock producer who bought all his feed would buy it at the market price, which would be a somewhat lower price than under present programs.

The market price would fluctuate more nearly in line with world prices, and exports of feed grains would increase. Exports of livestock products also would be encouraged.

3. Production effects

There is little empirical evidence as to the influence on production of changes in marginal prices when coupled with payments on a fixed production base. Production of feed grains in 1958 and subsequent years under this program would probably be somewhat larger than

in recent years. Production would be a little higher in 1958 and 1959 than with current programs, but a little lower in 1960 and 1961 than would be expected with current programs. Only a slight reduction in acreage of feed grains would take place because under this program it is assumed that corn would not be classed as an allotment crop and would not be eligible for the acreage-reserve program. But the lower market price for feed grains would make the conservation reserve alternative more attractive and would probably result in a somewhat greater acreage of feed grains being placed in the conservation reserve in the next few years.

The effect of lower prices for production in excess of base quantities would be to shift some production resources from feed grains to other uses. With soybeans not being included in a feed-grain program, more land would be put into soybeans. Some marginal land would probably go into pasture and forage.

Lower marginal prices should tend to reduce the use of fertilizer and other yield-increasing practices that are now stimulated by high support prices and acreage allotments.

It is estimated that although yields of feed grains would continue their upward trend, the rate of increase would be slower. Yields might increase at a little over 1 percent a year instead of at nearly 2 percent a year as otherwise projected. These production-retarding effects would be partially offset by stimuli to increased production. A part of the income payments received by some farmers would probably be used to increase expenditures for fertilizers and other resources used in feed-grain production. As with present programs, the allotment of bases would cause some farmers to keep acreages up to or in excess of the base in the hope that such action might influence the size of future bases. If payment were on actual quantity produced up to a base quantity there would be a tendency to exceed the base in order to be sure of having the base quantity.

It is believed that carryovers could be gradually reduced to manageable levels by 1961 by the combined effect of slightly greater disappearance with higher livestock numbers and a less rapid rate of expansion in production of feed grains.

4. Farm income

Incomes of feed-grain producers who sell feed grains would be slightly lower than at present because of the lower level of market prices and the fact that compensatory payments would be limited to the fixed production base.

Lower feed-grain prices would stimulate consumption of feed grains and tend to expand livestock numbers and production. It is estimated that a reduction of 10 percent in feed-grain prices would result in an increase in feed grain consumption of about 4 percent (USDA Technical Bull. 1061, p. 46). This in turn would increase livestock output about 1.5 percent and would lower livestock prices around 2.5 percent. The effects on hogs and poultry would be somewhat greater than on other kinds of livestock. Incomes of livestock producers who feed mostly purchased feed grains would not be greatly affected considering the relatively small reduction in livestock prices and the nearly offsetting reduction in feed-grain prices and increased volume of production.

Livestock producers who grow the bulk of their own feed grains and have not been participating in current programs would gain more than other groups. They would have their incomes increased by the payments and against this would be balanced some reduction in income from lower livestock prices.

Because of the higher proportion of participation, the production and income adjustments would be more widely distributed than under current programs.

5. *Costs*

A direct-payment program, by its nature, would cost the Government more than a price-support-loan program because the Government would pay all feed grain producers, including those who feed their grain rather than sell it. In the present support program, costs are incurred only on what is sold. For the national economy as a whole, the added cost would be at least partially offset by lower food prices.

The cost to the Government for payments to farmers for each 10 percentage points of parity would be approximately \$6 per ton of feed grains on which payments were made. Assuming a participation rate of about 95 percent on a base production of 95 million tons would mean payments of around \$540 million annually. During the first 2 years of the program payments might be more than this amount. If the market price were about 55 percent of parity, and it were desired to make payments to bring returns to a 70 percent level, the estimated cost of these payments would be about \$800 million. If the market price rose in later years, the cost would decrease.

6. *Special considerations*

A fixed-share base-payment program would involve some new administrative problems. Because a large proportion of feed-grain production is fed on farms where raised rather than sold, a payment on a fixed-output base would require careful initial determination of base output. Historical measures of acreage and yield would probably have to be relied on, with perhaps some flexibility for adjustment to unusual farm-management situations. If the base were not made unchangeable from year to year except in very unusual circumstances, the effectiveness of the program in reducing feed-grain production would soon be lost. Producers in their efforts to raise future bases would then disregard the marginal price brake.

The problem of determining a single feed-grain-production base would also need to be worked out carefully.

If payments were dependent on a showing of production up to the base quantity, it would be necessary to measure production of feed grains on each farm annually. This might be done by the farmer himself under a certification system. On many farms measurement would be relatively easy but sometimes it would be difficult because of the many ways in which feed grains are harvested, stored, utilized, and marketed. If payments were made on normal yields multiplied by acreage up to the base allotment, compliance checking would be easier, requiring only measurement of acreage planted and certification that the crop had been properly cared for.

It might be necessary to reduce the level of support payments on dairy products to reflect the lower level of feed-grain prices in order to avoid a disproportionate expansion in dairy production.

This program would lead to pressure for direct-payment programs on livestock and possibly for other crops. Livestock producers who bought their feed grains would argue that the program led to increased livestock production and lower livestock prices, for which they should receive compensatory payments. It could be said in return that they would receive some offsetting benefit from lower feed prices and larger volume of output, so that their net incomes would be affected less than the price changes would suggest.

Livestock producers who produced little or no feed grains and depended primarily on range or other forage would receive little or no benefit from lower feed prices. They also would not be eligible for income payments under this program. Expanded livestock production and lower prices would reduce incomes of these farmers and there might be strong pressure to extend income payments to forage producers.

F. OTHER PROGRAMS

Several other programs were considered. In many cases such programs would involve an entirely new approach to developing a sound feed-grain program. In other cases these new approaches would be fully effective only if extended to commodities other than feed grains. In some cases they might be used alone to aid feed-grain producers but generally they would likely be applied along with one of the price-support programs outlined in previous sections.

1. Programs of this type fall into three broad categories as follows:

(a) *Land use.*—This would include such programs as—

(1) A soil-bank program directly aimed at feed grains;

(2) Purchase of land by the Government to retire it from any agricultural use; and

(3) Conservation land use aimed at shifting specific types of lands in specific areas out of tilled crops to conservation uses.

(b) *Government-assisted insurance programs.*—Under programs of this type the Government would assist in participating producers through some type of insurance program, which would protect producers a reasonable cost against price declines or which would afford producers reasonable income protection.

(c) *Government assistance in developing new or expanded domestic and export markets for feed grains.*—These types of programs generally involve some form of subsidy program or two-price system and, in the case of industrial utilization, an expanded research program.

2. Program descriptions

At this time, detailed analysis with respect to the programs enumerated above are not being made. Instead, a brief description of how some of these programs may operate is included.

(a) *Land use.*—(1) Soil bank for feed grains: The current soil-bank program could be aimed directly at the problem of adjusting feed-grain production to requirements. This could be accomplished by establishing a feed-grain base (one feed-grain base or a base for each kind of feed grain) with producers being paid for reducing their feed-grain acreage below the base. The acreage-reserve program would operate in much the same manner as that now in effect for corn in the commercial corn area except that the base would be more nearly equal to the "usual" acreage.

If the conservation reserve approach were to be used, producers could be given a permitted acreage base for feed grains out of their total permitted base acreage. A permitted feed-grain base acreage would emphasize the necessity of reducing production of feed grains and would prevent the shifting of acreages within the total base to feed grains. It is believed, generally, that the conservation acreage program in the long run would be more effective than the acreage reserve because of the longer period that the acreages diverted are under contract.

To encourage participation, the rates of payment under an extended conservation reserve would probably be higher than under the current conservation reserve program. With the soil-bank program applicable to feed grains Government costs would likely be higher than under the current soil bank because of the inclusion of all feed grains in the acreage reserve and also because of the higher payment rates under the conservation reserve.

The program could be operated in connection with most of the price-support programs discussed previously.

Long-range prospects and prospects for the next 5 years, previously discussed, indicate that yields of feed grains may increase as fast as feed-grain requirements. If this occurs, production for the immediate future will continue to exceed disappearance unless 6 to 8 million acres are diverted from feed grains under price support, allotment, or soil-bank programs. Additional acreage reductions would be required to reduce carryover stocks, or if the acreage diverted is the poorer yielding land.

Under the assumption described above, the conservation reserve program might be expanded from its present goal of 25 million acres by 1960 to remove, by 1962, up to 50 million acres from tilled crops.

A program of this size would require added inducements in the way of increased payments to encourage participation. The advertising and bid procedure authorized in Public Law 540, the Soil Bank Act, section 107 (c), could be used effectively in signing up entire farms. The "whole farm" concept could be adopted to secure, in certain areas, entire blocks of land less suited to crop production.

A program of this size would likely result in reducing feed grain production below disappearance and would aid in reducing the carry-over stocks of feed grains from their current high level.

(2) Land purchase: Under this approach, the Government would purchase land for the purpose of removing it from agricultural production until such time as it would be required. A program of this type would involve a number of difficult administrative problems including (a) rate of purchase, (b) type of land to be purchased, (c) areas where such purchases should be made, (d) protection of the land purchased, and (e) problems relating to the moving off farms and finding employment for persons whose farms were purchased. The major difference from the soil-bank program would be that the Government would have complete control of the land and would be in better position to determine the acreage removed from production.

(3) Conservation land use: This alternative to the soil-bank program has as its objective the removal of land from tilled-crop production, the same as the objective of the current soil-bank program. The program, however, would be materially different in its application to individual farms. For each farm a "tilled crop base" and a "cover

crop base" acreage would be established. Cooperating producers would be paid for shifting acreages from the tilled crop base to the cover crop base. The amount of payment would be computed on the basis of the percentage of the tilled base shifted and the gross income of the farm. That is, if 20 percent of the tilled base were shifted to conservation uses, the payment would be equal to a percentage of the gross base farm income, the percentage depending on the use of the land put into cover crop base. It probably would be necessary to set some limits for highly intensive types of farming.

The program might provide for transferring as much as 45 million acres from tilled crops to cover crops. It could be aimed at shifting to conservation uses the land most adversely affected by plowing and tilling. Where the hazard in producing tilled crops is great, as in the dust bowl, emphasis should be placed on shifting land permanently into conservation uses.

(b) *Government assisted insurance programs.*—Government assisted insurance programs generally would provide price protection or income assistance to producers, with the producer paying a part or all of the cost of assistance in the form of premiums. Programs would be voluntary and generally would require producers to enter into contracts of longer than 1 year in order to avoid excessive losses and costs. Since the premium rates would likely be high, producers generally would not participate on a broad base unless a part of the cost were paid by the Government.

One program would make available to farmers at reasonable cost a system of insurance against price declines. A program of this type would provide farmers, at their option, the opportunity to insure up to their normal production against price drops. Producers would know in advance of the planting season that they would be protected against price declines (possibly only more than the usual decline). That is, if the market price declined the difference would be made up by a payment under the insurance program. Insurance could be made available in lieu of any other price support program, or in conjunction with other price support.

Insurance might be limited to bona fide farmers and could contain limitations as to the amount of insurance available to any one producer. The insured period would likely cover more than 1 year for the commodity insured in order to prevent farmers from participating only during a particular year when a price downturn seemed likely.

If a program of this type were to be made available only to feed grain producers it could be made applicable to all feed grain producers, including those who feed the feed grain to livestock produced on the farm.

Farmers would be free to adjust production since there would be no production controls.

A program of this type would involve administrative problems in setting up the premium rate, type of insurance to offer, financing of the early years of operation and many others.

An alternate approach would be to offer, in the form of insurance, complete income protection to participating producers. This approach would be somewhat like the plan outlined in section E of this report. The main difference would be that producers would establish income protection not on a fixed base but possibly on the total normal production, or the amount specified by the producer in the contract.

In addition, it might be desirable to make such contract longer than 1 year and on a commodity basis.

Generally, (1) price or income decline is not an insurable hazard by usual insurance standards. Usually large reserves would be required to pay losses if low farm prices were to occur during the first years of operation. Provision for adequate reserves would need to be made in advance. (2) Price insurance alone is not an effective method of dealing with overproduction or surpluses. (3) The price insurance program could be self-supporting but a dividing of costs between producers and the Government would be more likely. However, even the latter would have a considerable element of self-help, and Government costs would not be out of line with other program costs.

(c) *Government assistance in developing new or expanded export markets.*—Programs of this type would generally consist of making feed grains available at reduced prices for the purpose of expanding domestic or export markets or developing new uses. Such programs generally would require Government assistance, which could be the following: (1) Purchase at market or support prices and sale to the outlet at a reduced price, (2) making CCC stocks available at reduced prices, (3) making subsidy payments to producers or handlers who agree to furnish grain to the outlet below market prices (similar to the export subsidy under the wheat flour export program), (4) making payments to the processors or users under which the outlet would purchase the feed grain in the market and a subsidy payment would be made to the user, or (5) subsidizing the construction of new facilities.

This approval would also require increased emphasis on utilization research. Research programs would involve (a) developing new industrial uses, (b) replacement of feed grain crops with new crops for which research has found potential uses, and (c) other means to expand markets for all agricultural products.

Much of the cost of developing new or expanded uses for feed grains would be borne by the Government.

Two-price systems which would aid in channeling surplus production to new uses do not appear feasible for feed grains, since it is doubtful whether many producers would be interested in producing feed grains below their value as feed. Only a relatively small percentage of the total production is exported and therefore a two-price plan does not appear practicable. A two-price arrangement probably would not aid in maintaining higher prices in the domestic market than in foreign markets. In the event there were major price differences it might result in unfavorable relations with other countries. Further, it is unlikely that a two-price system would materially reduce surpluses of feed grains.

VII. APPENDIX

DESCRIPTION OF PAST PRICE SUPPORT PROGRAMS FOR FEED GRAINS

(Elaboration of information previously summarized)

Feed grain prices have been supported for a number of years at varying levels. Price support was first made on the 1933 crop of corn, the 1940 crop of barley and grain sorghums, and the 1945 crop of oats. Loans were used as the only method of price support prior to 1947 when purchase agreements were added. Price support for

corn generally has been mandatory under law. That for the other feed grains was on a discretionary basis except during 1956. Some of the major features of these programs were as follows:

CORN

1933-37

Nonrecourse loans were offered on a discretionary basis under the CCC charter. The loan rates, which were uniform in all areas, ranged from \$0.45 to \$0.55 per bushel, reflecting 55 to 68 percent of parity. Loans were made only in States which had farm warehouse acts in effect. The scope of operation varied from year to year. For example, about 11 percent of the 1933 crop was placed under support, but the droughts of 1934 and 1936 greatly reduced the quantities in the other years of this period.

1938-40

The Agricultural Adjustment Act of 1938 made it mandatory to offer corn loans, under certain conditions, within the range of 52 to 75 percent of parity—the actual level within this range depending upon production and level of prevailing prices. The average support level for this period ranged from \$0.57 to \$0.61 per bushel reflecting 69 to 75 percent of parity. Loans were made available in all corn-producing areas.

The act also provided authority for establishing a commercial corn area, acreage allotments, and marketing quota. Compliance with acreage allotments was required as a condition of eligibility for full support if allotments were in effect. Producers in the noncommercial area were offered support at 75 percent of the rate in the commercial area to cooperating producers. If marketing quotas were announced and then rejected by growers, no loans were to be available that year. The commercial area was defined in the act to include those counties where the production of corn, excluding silage, during the preceding 10 years was 450 bushels or more per farm and 4 bushels or more per acre of farmland in the county.

Allotments were in effect during each year of the 1938-40 period. The first allotment established in 1938 was for a commercial corn area consisting of 566 counties in 12 States. It amounted to 40.5 million acres. The carryover allowance used for determining the allotment was 7 percent of domestic disappearance and exports.

1941-49

The act of May 26, 1941, as amended, made support mandatory at 85 percent of parity for the 1941-46 crops. This support level was increased under the Stabilization Act of 1942 which made support mandatory at 90 percent of parity on the 1942 and subsequent crops, and for 2 years after the termination of hostilities of World War II. However, the President could retain the lower rate if, in his judgment, it was desirable to prevent an increase in the cost of feed for livestock and poultry. In accordance with this provision the 1942 and 1943 rates were set at 85 percent of parity. Beginning with the 1944 crop and for the remainder of this period, the support rate reflected 90 percent of parity. The United States average support ranged from \$0.75 to \$1.44 per bushel.

The 1941-crop loans were varied by locations. Prior to that crop all loans were on a flat-rate basis, that is, one uniform rate for compliers in the commercial area, and one uniform rate for the non-commercial area.

The 1941-crop loans were for a 3-year period and matured on August 1, 1944, unless called earlier. All other loan programs during this period initially were for 1 year.

Acreage allotments were in effect for only the 1941 and 1942 crops during this period. The Agricultural Adjustment Act of 1938 required allotments for corn in the commercial corn area each year unless the Secretary dispensed with allotments under his emergency authority contained in the act. Under this emergency authority, allotments were suspended for the 1943-49 crops.

Beginning with the 1947 crop, purchase agreements were used as a means of supporting prices.

1950-56

The Agricultural Act of 1949 made support on corn mandatory at 75 to 90 percent of parity depending upon the relationship of the prospective total supply to the normal supply. However, support could not be less than 90 percent of parity for the 1950 crop, and not less than 80 percent of parity for the 1951 crop if either acreage allotments or marketing quotas were in effect. Later amendments to the Agricultural Act of 1949 extended the 90-percent support provisions to the 1953 and 1954 crops, and provided for support at not less than 82.5 percent of parity for the 1956 crop. The average support ranged from \$1.47 to \$1.62 per bushel.

The Agricultural Act of 1949 further provides that support to producers of corn outside the commercial corn area shall be 75 percent of the rate in the commercial area, and that support could be extended to noncompliers in the commercial area at a rate not in excess of the support rate in effect for cooperators. It also provided that if marketing quotas were disapproved by producers, support would be at 50 percent of parity. The allowance for carryover in computing the allotment and quota and to determine the support level was increased to 15 percent of domestic consumption and exports.

The Agricultural Act of 1954 amended the 1949 act, as amended, by providing that marketing quotas for corn (which had never been put into effect) would no longer be applicable.

The 1956 act provided for base acreage instead of allotments for the 1956 crop. The act also provided for producers to determine whether base acreage with support on a discretionary basis, or allotments and mandatory support, should be in effect for subsequent crops. Since the base acreage provisions were not approved by the required two-thirds vote, allotments are in effect for the 1957 crop and will continue for subsequent crops unless the Secretary suspends them under his emergency authority.

The Soil Bank Act of 1956, designed to reduce the large surpluses which had accumulated, was put into effect with the 1956 crop. This act, to continue through the 1959 crop, provided for making payments to producers for taking acreage out of production within the allotment or base acreage.

Allotments were suspended under the emergency authority of the 1949 act, as amended, for 1951, 1952, and 1953. Allotments were in effect for 1950, and 1954-57. A base acreage of 51 million acres

was also in effect for 1956 crop corn with soil-bank payments made to producers for reducing their acreage below the base acreage determined for the farm. Acreage allotments totaled 43.3 million acres for the commercial area in 1956 compared with the 1955 allotment of 49.8 million acres, the largest acreage allotment that has been in effect. The announced allotment for 1957 of 37.3 million acres is currently in effect in 894 counties of 24 States.

In 1956, support was extended for the first time to noncompliers in the commercial corn area. The rate was \$1.25 per bushel, 25 cents below the support to cooperators.

FEED GRAINS OTHER THAN CORN

Support for feed grains other than corn (oats, barley, and grain sorghums) has been discretionary with the Secretary of Agriculture with two exceptions. Support in 1956 was mandatory at 76 percent of the May 1, 1956, parity price and for the 1957 crop is mandatory at not less than 70 percent of parity to producers outside the commercial corn area if the Secretary extends price support to producers of corn not complying with acreage limitations (i. e., allotments, since producers have rejected base acreage). Support in 1957 is discretionary if support is not extended to noncompliers of corn in the commercial area.

Except for these two special cases, determination as to the need for and level of support has rested with the Secretary of Agriculture, as based on consideration of eight factors specified in the Agricultural Act of 1947, as amended.

These eight factors are: (1) The supply of the commodity in relation to the demand therefor, (2) the price level at which other commodities are being supported and, in the case of feed grains, the feeding values of such grains in relation to corn, (3) the availability of funds, (4) the perishability of the commodity, (5) the importance of the commodity to agriculture and the national economy, (6) the ability to dispose of stocks acquired through a price-support operation, (7) the need for offsetting temporary losses of export markets, and (8) the ability and willingness of producers to keep supplies in line with demand.

During the period when these commodities were supported the support level of the three feed grains has varied widely. Oats support rates varied from a low of \$0.48 (70 percent of parity) per bushel in 1945 to \$0.80 per bushel (85 percent of parity) in 1953. Barley support rates varied from \$0.35 per bushel (44 percent of parity) in 1940 to \$1.24 per bushel (85 percent of parity) in 1953. Grain sorghum rates varied from \$0.54 per hundredweight (35 percent of parity) in 1940 to \$2.43 per hundredweight (85 percent of parity) in 1953. The 1953 and 1954 crops of these 3 feed grains were supported at 85 percent of parity, the highest level to date.

Feed grains (including corn in the noncommercial area) were included in the list of crops for which the acres could be reduced and placed in the conservation reserve part of the soil bank. Under this program the Secretary is authorized to enter into contracts with

producers during 1956-60. The period covered by any contract shall not exceed 10 years ending no later than December 31, 1969, except that in the case of contracts for the establishment of trees they can be made to cover a period of 15 years ending December 31, 1974.

SUPPORT ACTIVITIES

The support activities each year since their inception are shown in tables 14 to 17. These tables give data on the quantities placed under support, support levels, and prices received by farmers since 1933.

From the beginning of the support through May 31, 1957, CCC had a realized loss of nearly \$867 million in acquiring, handling, program and disposing of corn, oats, barley and grain sorghums. The total quantities acquired by CCC over this period, the quantities disposed of, and the realized losses are as follows:

Grain	Acquisition	Disposition	Realized loss
	<i>Million bushels</i>	<i>Million bushels</i>	<i>Million dollars</i>
Corn.....	2,264	1,415	544.0
Oats.....	179	154	63.6
Barley.....	296	241	85.0
Grain sorghums.....	420	341	174.2
Total.....			866.8

This loss does not include the losses which may occur in disposing of current feed-grain inventories or quantities under loans. As of May 31, 1957, a reserve for estimated losses on feed-grain loans outstanding and inventories amounted to slightly less than \$870 million.

On May 31, 1957, the CCC investment in feed grains (quantities under loan and in inventory) was as follows: Corn, 1,342 million bushels with an investment value of \$2,250 million; oats, 38 million bushels, valued at \$28 million; barley, 80 million bushels valued at \$89 million; and grain sorghums, 45 million hundredweight, valued at \$105 million. The total investment in these feed grains of nearly \$2.5 billion represented about 32 percent of CCC's total investment in all commodities. The investment in corn was about 91 percent of the investment in all feed grains and 29 percent of CCC's total investment in all commodities.

The realized loss shown above does not include the cost of other programs which are primarily for the purpose of stabilizing farm prices and income. Total realized cost of all programs of this nature for the fiscal years 1932-56 amounted to slightly more than \$1,746 million (realized costs for the fiscal year 1957 are not available for the various programs). The realized costs of agricultural and related feed-grain programs primarily for stabilization of prices and income by function or purpose for the fiscal years 1932-56 were as follows through June 30, 1956:

[In millions]

Type of program	Corn	Oats	Barley	Sorghum grains	Total
CCC nonrecourse loan, purchase and payment programs.....	\$338.9	\$35.8	\$75.4	\$148.1	\$598.2
CCC loss on emergency feed including transportation and handling cost.....	28.2	6.4			34.6
Donations to other nations.....	11.7		.6		12.3
Foreign currency sales, Public Law 480.....	20.9	6.5	21.8	9.4	58.6
Collections.....	¹ 13.3	¹ 2.5	¹ 7.5	¹ 5.5	¹ 28.8
Removal of surpluses.....	22.4			6.0	28.4
Federal crop insurance.....	¹ 9				¹ 9
Acreage allotment and conservation payments.....	469.6				469.6
Parity payments.....	347.5				347.5
Corn-hog program:					
Program expenses.....	488.7				488.7
Processing tax and other receipts.....	¹ 262.0				¹ 262.0
Total.....	1,451.7	46.2	90.3	158.0	1,746.2

¹ Gain.

TABLE 14.—Summary of price support operations for corn

Year beginning October 1	Production (all corn)	Price-support operations					National average price support level			National average price received by farmers compared with parity	
		Under price support			Deliveries to CCC	Percent of crop	Parity for price support ¹	Support rate per bushel	Support rate as percent of parity	Season average price received by farmers ²	Price received by farmers as percent of parity
		Owned by CCC on Oct. 1	Loans	Purchase agreements	Total						
		1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	Percent	1,000 bushels	Percent	Percent		Percent
1932-33	2,930,352		267,762		267,762	11.2		\$0.45		\$0.292	43
1933-34	2,397,593		20,075		20,075	1.4		.55		.494	66
1934-35	1,448,920		30,966		30,966	1.3		.822		.802	99
1935-36	2,299,363		158		158	.01		.45		.632	77
1936-37	1,505,689		61,117		61,117	2.3		.55		1,035	124
1937-38	2,642,978		229,839		229,839	9.0	47,521	.50		.490	57
1938-39	2,548,753		301,729		301,729	11.7	132,983	.815		.642	58
1939-40	2,890,985	7,100	103,125		103,125	4.2	114,390	.61		.601	74
1940-41	2,457,146	107,229	110,871		110,871	4.2	12,299	.880		.785	84
1941-42	2,651,889	165,359	56,401		56,401	1.8	29,799	.970		.894	32
1942-43	3,068,362	48,165	7,895		7,895	.3		.80		1.08	102
1943-44	3,965,980	13,000	20,647		20,647	.7		.98		1.03	94
1944-45	3,087,982	12,000	2,986		2,986	.1		1.12		1.23	110
1945-46	2,868,795	19,849	25,982		25,982	.8		1.28		2.38	140
1946-47	3,217,076	0	371,785	7	371,785	15.3		1.34		2.28	142
1947-48	2,534,739	0	371,785	174,123	546,908	18.3	406,586	1.44		2.28	80
1948-49	2,534,739	0	371,785	55,177	386,962	11.0	87,573	1.55		1.52	87
1949-50	3,271,914	334,551	51,590	2,469	54,050	1.8	513	1.40		1.66	93
1950-51	3,021,952	490,810	25,207	2,970	56,177	1.8	719	1.63		1.57	90
1951-52	3,293,994	290,699	314,958	102,207	417,155	12.7	374,000	1.75		1.60	95
1952-53	3,200,896	376,892	376,892	94,196	471,088	14.7	400,000	1.78		1.51	95
1953-54	3,059,971	353,670	353,670	54,870	258,543	8.5	258,543	1.80		1.48	83
1954-55	3,657,891	681,300	356,134	65,010	421,144	13.0	421,144	1.82		1.42	79
1955-56	3,229,749	4	(405,000)	(75,000)	(480,000)	(13.9)	(480,000)	1.74		1.35	74
1956-57	3,451,292							1.50-1.25		1.29	(74)
1957-58								1.36			77

¹ Parity prices used for determining the support levels for each year are shown, generally for mid-September. These figures do not reflect revisions in parity prices made subsequently.² State average prices weighted by sales to obtain national average. Prices for years in which there was a substantial volume of deliveries to CCC from loans and purchase agreements include an allowance for such deliveries valued at average loan rates.³ Mostly supply inventory.⁴ Partly estimated.⁵ Preliminary.⁶ All figures in parentheses are estimated.

Records do not show price support and supply separately. Fiscal figures as reported are incomplete due to lag in reporting.

TABLE 15.—*Summary of price-support operations for oats*

Year beginning July 1	Production	Price-support operations						National average price-support level			National average price received by farmers compared with parity		
		Owned by CCC on July 1	Under price support				Deliveries to CCC	Parity for price support ¹	Support rate per bushel	Support rate as percent of parity	Parity, beginning market- ing year ²	Season average price received by farmers ³	Price received by farmers as percent of parity
			Loans	Purchase agreement	Total	Percent of crop							
	1	2	3	4	5	6	7	8	9	10	11	12	13
	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	Percent	1,000 bushels	Dollars	Dollars	Percent	Dollars	Dollars	Percent
1932-33	1,254,584												30
1933-34	736,309												71
1934-35	544,247												92
1935-36	1,210,229												90
1936-37	1,182,783												87
1937-38	1,176,744												95
1938-39	1,067,363												87
1939-40	997,704												63
1940-41	1,266,460												63
1941-42	1,182,509												79
1942-43	1,342,681												81
1943-44	1,130,831												112
1944-45	1,140,240												103
1945-46	1,523,851	0	2,933		2,933	.2		\$0.690	\$0.48	70			95
1946-47	1,477,573	0	2,788		2,788	.05		.714	.63	74			109
1947-48	1,175,142	0	244		244	.02		.915	.65	69			114
1948-49	1,450,186	15,098	8,252		23,350	1.6		.994	.70	70			72
1949-50	1,220,118	9,881	30,304		41,005	3.4		.982	.69	70			68
1950-51	1,369,199	12,109	14,812		26,921	1.1	16,929	.948	.71	73			84
1951-52	1,277,643	9,031	12,620		21,651	1.0	555	.954	.72	75			84
1952-53	1,217,433	4,776	17,595		22,371	1.8	13,544	.981	.80	80			83
1953-54	1,153,205	13,180	46,206		59,386	4.9	43,497	.944	.80	85			85
1954-55	1,409,601	15,560	64,655		80,215	5.3	58,072	.878	.75	85			81
1955-56	1,503,074	40,408	56,113		96,521	4.6	43,240	.865	.61	76			70
1956-57	1,503,074	57,073	43,937	2,120	43,937	3.1	(18,000)	.864	.65	76			(80)
1957-58	1,162,544				43,057				.60	70			

¹ Parity prices shown from which the support levels were computed are prices originally reported as follows: 1945 and 1946, March; 1947-49, April; 1950, June; 1951, January; 1952, August 1951; 1953, August 1952; 1954, September 1953; 1955, November 1954; 1956, April² Generally mid-June parity prices.³ State average prices weighted by sales to obtain national average. Prices for years in which there was a substantial volume of deliveries to COC from loans and purchase agreements include an allowance for such deliveries valued at average loan rates.⁴ Preliminary.⁵ All figures in parenthesis are estimated.

TABLE 16.—Summary of price-support operations for barley

Year beginning July 1	Production 1,000 bushels	Owned by CCC on July 1 1,000 bushels	Price-support operations				National average price-support level				National average price received by farmers compared with parity		
			Under price support		Deliveries to CCC 1,000 bushels	Parity for price support ¹ (8)	Support ratio per bushel (9)	Support-rate as percent of parity (10)	Parity beginning marketing year ² (11)	Season average price received by farmers ³ (12)	Price received by farmers as percent of parity (13)		
			Loans (3)	Purchase agreements (4)	Total (5)								
			1,000 bushels	1,000 bushels	1,000 bushels	Percent of crop (6)		Percent				Percent	
1932-33	290,394												
1933-34	162,839												
1934-35	117,390												
1935-36	288,667												
1936-37	147,740												
1937-38	221,889												
1938-39	256,620												
1939-40	278,193												
1940-41	311,278		7,499		7,499	2.4							
1941-42	362,568		16,267		16,267	4.5							
1942-43	429,450		15,199		15,199	3.5							
1943-44	322,913	8	761		761	1.2							
1944-45	276,275	4,575	3,362		3,362	1.2							
1945-46	266,994	4,267	1,027		1,027	.4							
1946-47	265,059	1,718	491		491	.2							
1947-48	251,868	0	357		357								
1948-49	215,837	0	31,352	17,445	49,357	15.1							
1949-50	225,071	24,934	28,697	37,946	66,643	13.9							
1950-51	303,773	31,497	29,626	4,693	30,690	10.1							
1951-52	257,212	20,388	16,326	586	16,912	6.6							
1952-53	238,168	9,012	7,301	2,309	9,940	4.3							
1953-54	246,723	14,698	36,376	8,800	45,176	18.3							
1954-55	379,254	14,108	100,977	14,131	115,108	30.4							
1955-56	401,225	73,530	78,530	17,592	96,032	24.0							
1956-57 ⁴	372,495	60,688	63,438	13,293	76,731	20.6							
1957-58													

¹ Parity prices shown from which the support levels were computed are prices originally reported as follows: 1940, April; 1941-46, February; 1947-49, April; 1950, June; 1951, January; 1952, August 1951, 1953, August 1952; 1954, September 1953; 1955, November 1954; 1956, April.

² Generally mid-June parity prices.

³ State averages prices weighted by sales to obtain national average. Prices for years in which there was a substantial volume of deliveries to CCC from loans and purchase agreements include an allowance for such deliveries valued at average loan rates.

⁴ Mostly supply inventory. Records do not show price support and supply separately.

⁵ Preliminary.

⁶ All figures in parentheses are estimated.

TABLE 17.—Summary of price-support operations for grain sorghums

Year beginning Oct. 1	Production	Price-support operations					National average price support level				National average price received by farmers compared with parity	
		Owned by CCC on Oct. 1	Loans	Purchase agreements	Total	Percent of crop	Deliveries to CCC	Parity for price support per hundred-weight ¹	Support ratio per hundred-weight ²	Support ratio as percent of parity	Parity beginning marketing year per hundred-weight ³	Season average price received by farmers per hundred-weight ⁴
	1	2	3	4	5	6	7	8	9	10	11	12
						Percent	1,000 hundred-weight			Percent		Percent
1932-33	1,000 hundred-weight	1,000 hundred-weight	1,000 hundred-weight	1,000 hundred-weight	1,000 hundred-weight						\$1.48	\$0.56
1933-34	37,014					.09					1.52	.91
1934-35	30,456					.3					1.56	1.56
1935-36	10,757					.1					1.54	.97
1936-37	32,262					.04					1.57	1.64
1937-38	16,951					4.4	1,873				1.60	.92
1938-39	30,171					.01					1.50	.72
1939-40	37,638					.08					1.50	1.04
1940-41	20,837		44		44			\$1.55	\$0.54	35	1.50	.87
1941-42	48,001		191		191			1.55	.71	46	1.63	1.03
1942-43	63,584	10	68		68	.1		1.78	.98	55	1.82	1.40
1943-44	61,406		26		26	.04		1.94	1.52	78	1.96	2.04
1944-45	103,588		4,001		4,001	4.4		2.06	1.70	83	2.03	1.63
1945-46	53,795		6		6	.01		2.15	1.65	79	2.08	2.14
1946-47	59,374		309		309	.5		2.78	1.72	80	2.38	2.50
1947-48	52,202		42		42			3.01	2.12	77	2.80	2.77
1948-49	73,575	384	10,409		22,204	30.3	21,820	3.01	2.31	77	3.01	2.59
1949-50	83,717	8,284	43,755		47,274	56.5	46,808	2.98	2.09	70	3.02	2.88
1950-51	130,780	33,424	33,292		33,780	25.8	9,817	2.87	2.09	65	2.97	2.36
1951-52	91,203	9,008	8,310		8,399	9.2	209	2.90	2.17	70	2.86	2.82
1952-53	50,815	200	1,851		2,051	4.1	305	2.97	2.58	85	2.68	2.36
1953-54	64,833	58	23,855		1,662	39.4	22,935	2.88	2.38	85	2.55	2.28
1954-55	12,179	62,116	1,939		64,065	48.6	61,070	2.51	1.78	70	2.49	1.75
1955-56	131,765	38,106	57,773		1,778	44.1	61,800	2.59	1.97	76	2.62	(2.05)
1956-57	136,815	42,123			22,259	19.4	(18,000)	2.62	1.83	70		
1957-58	114,836											

¹ Parity prices shown from which the support levels were computed are prices originally reported (except as noted) for the following months: 1940-43, February; 1944-45, January; 1946-48, January; 1949-50, January; 1951-52, January; 1953-54, January; 1955-56, January; 1957-58, January.

² Loan rates for 1940-44 were released on a per bushel basis as follows: 1940, 30 cents, 1941, 40 cents, 1942, 55 cents; 1943, 85 cents; 1944, 95 cents.

³ Generally mid-September parity prices.

⁴ State average prices weighted by sales to obtain national average. Prices for years in which there was a substantial volume of deliveries to CCC from loans and purchase agreements include an allowance for such deliveries valued at average loan rates.

⁵ Mostly supply inventory. Records do not show price support and supply separately.

⁶ Preliminary.

⁷ All figures in parentheses are estimated.

TABLE 18.—Cash receipts from farm marketings by major products, with percentage distribution, averages 1926-50, annual 1951 to date
[Millions of dollars]

Period	Livestock and livestock products					Crops					Total cash receipts ²		
	Meat animals			Poultry and eggs	Dairy products ¹	Total	Wheat	Cotton (lint and seed)	Total				
	Cattle and calves	Sheep and lambs	Hogs										
										Feed grains		Total	
Average:													
1926-30	\$1,368	\$202	\$1,250	\$2,829	\$1,084	\$1,691	\$5,739	\$536	\$669	\$720	\$4,791	\$10,530	
1931-35	1,787	122	1,580	1,498	648	1,145	3,384	233	308	289	2,604	5,988	
1936-40	1,236	172	886	2,294	816	1,452	4,731	403	494	473	3,515	8,246	
1941-45	2,401	299	2,298	5,088	2,146	2,590	10,077	956	1,076	1,015	7,622	17,699	
1946-50	4,908	382	3,368	8,658	2,959	3,915	15,777	1,748	2,049	2,081	12,414	28,191	
1951	7,005	466	3,889	11,360	3,605	4,254	19,670	1,653	1,992	1,769	13,239	32,909	
1952	6,206	391	3,464	10,061	3,320	4,567	18,281	1,730	2,123	2,220	14,257	32,538	
1953	4,878	317	3,483	8,678	3,602	4,366	17,134	1,901	2,205	2,164	14,035	31,169	
1954	5,088	325	3,455	8,868	3,013	4,126	16,284	2,259	2,566	2,046	13,663	29,944	
1955	5,174	316	2,709	8,199	3,197	4,222	15,879	2,195	2,536	2,567	13,060	29,542	
1956	5,307	330	2,609	8,246	3,219	4,478	16,250	2,241	2,561	1,779	14,122	30,372	
Percentage of total													
Average:													
1926-30	13.0	1.9	12.0	26.9	10.3	16.1	54.5	5.1	6.4	6.8	12.4	45.5	100.0
1931-35	13.1	2.0	9.8	25.0	10.8	17.1	56.5	3.9	5.1	4.8	10.4	43.5	100.0
1936-40	15.0	2.1	10.7	27.8	9.9	17.6	57.4	4.9	6.0	5.7	9.0	42.6	100.0
1941-45	14.1	1.7	13.0	28.7	12.1	13.9	56.9	5.4	6.1	5.7	7.2	43.1	100.0
1946-50	17.4	1.4	11.9	30.7	10.5	12.9	59.8	6.2	7.3	5.4	8.0	44.0	100.0
1951	21.3	1.4	11.8	34.5	11.0	12.9	59.8	5.0	6.1	5.4	8.7	40.2	100.0
1952	19.1	1.2	10.6	30.9	10.2	14.0	58.2	5.3	6.5	6.8	9.2	43.8	100.0
1953	15.7	1.0	11.2	27.8	11.6	14.0	55.0	6.1	7.1	6.9	10.2	45.0	100.0
1954	17.0	1.1	11.5	29.6	10.1	13.8	54.4	7.5	8.6	6.8	9.0	46.2	100.0
1955	17.5	1.1	9.2	27.8	10.8	14.3	53.8	7.4	8.6	5.7	8.7	46.2	100.0
1956	17.5	1.1	8.6	27.2	10.6	14.7	53.5	7.4	8.4	5.9	8.3	46.5	100.0

¹ Excludes farm butter 1951-53.² Does not include Government payments.

TABLE 19.—*Planted acreages of major crops, averages 1931-50, annual 1951-56*
[Thousands of acres]

Period	Feed grains				Other feed crops ¹		Wheat	Cotton ²	Soybeans for beans ¹	Other crops	Total ³
	Corn	Oats	Barley	Sorghums for grain ¹	Total	Hay					
Average:											
1931-35	106,551	43,575	13,711	4,038	167,875	68,190	7,518	34,355	1,531	17,444	264,020
1936-40	94,787	39,734	13,711	4,708	152,940	78,812	3,453	27,858	3,420	19,523	259,721
1941-45	90,946	43,698	13,823	6,921	155,388	73,801	5,415	21,164	9,433	22,129	258,652
1946-50	85,811	44,117	12,161	7,283	149,382	73,683	5,245	21,993	11,203	19,285	257,767
1951	83,275	41,015	10,190	5,325	140,805	73,147	5,405	28,193	13,615	17,436	261,762
1952	82,250	42,411	9,131	5,395	139,187	73,147	5,372	27,182	14,435	15,341	255,212
1953	81,574	43,278	8,615	6,205	140,704	73,997	5,897	25,791	14,829	18,231	258,833
1954	82,859	43,808	14,740	11,792	153,299	73,791	6,458	26,244	17,047	19,495	254,546
1955	81,677	47,523	16,335	12,868	158,403	75,360	7,973	17,503	18,620	18,392	253,913
1956	78,557	44,648	14,712	9,349	147,266	37,627	7,827	16,993	20,926	18,580	243,876
Percentage of total											
Average:											
1931-35	29.3	12.0	3.8	1.1	46.2	18.7	2.1	18.4	0.4	4.8	100.0
1936-40	26.8	11.2	3.9	1.3	43.2	19.4	2.7	20.3	1.0	5.5	100.0
1941-45	25.5	12.3	4.4	1.9	44.1	21.3	2.6	17.2	3.7	6.2	100.0
1946-50	24.0	12.3	3.4	2.0	41.7	20.6	1.5	21.5	3.2	5.4	100.0
1951	23.0	11.3	3.0	2.4	39.7	20.7	1.5	21.7	3.8	4.8	100.0
1952	23.1	11.9	2.6	1.5	39.1	21.2	1.6	22.0	4.1	4.3	100.0
1953	22.7	12.0	2.7	1.8	39.2	21.0	1.8	22.0	4.1	5.1	100.0
1954	23.2	13.2	4.2	3.3	43.9	20.8	1.6	17.6	4.8	5.5	100.0
1955	22.9	13.4	4.6	3.6	44.5	21.3	2.3	16.5	5.3	5.2	100.0
1956	22.7	12.9	4.3	2.7	42.6	21.3	2.3	17.5	6.0	5.4	100.0

¹ Acreage harvested.² Acreage in cultivation July 1.³ As reported by AMS for 59 crops planted or grown.

TABLE 20.—Index numbers of man-hours of labor used for farmwork by specified groups of enterprises, averages 1911-55, annual 1951-55

[1947-49=100]

Period	All farm work	Total live-stock excluding horses and mules	Crops				
			Feed grains	Hay and forage	Food grains	Cotton	Oil crops
Average:							
1911-15.....	136	87	223	149	212	197	30
1916-20.....	139	91	223	171	223	177	44
1921-25.....	135	95	205	164	193	172	45
1926-30.....	136	99	188	151	160	202	52
1931-35.....	128	107	181	140	130	157	62
1936-40.....	122	105	158	148	132	138	79
1941-45.....	118	117	143	152	107	102	131
1946-50.....	99	101	101	102	95	88	98
1951-55.....	83	99	69	87	68	82	68
1951.....	91	98	74	88	74	93	72
1952.....	89	98	68	86	76	89	64
1953.....	88	99	65	87	73	88	64
1954.....	86	99	68	85	62	70	67
1955.....	85	99	69	91	56	70	68

TABLE 21.—Feed grains: Planted acreage, yield per acre and production, averages 1926-50, annual 1950 to date

Period	Corn			Oats			Barley		
	Planted acreage	Yield	Production	Planted acreage	Yield	Production	Planted acreage	Yield	Production
Average:	<i>Million acres</i>	<i>Bushels</i>	<i>Million bushels</i>	<i>Million acres</i>	<i>Bushels</i>	<i>Million bushels</i>	<i>Million acres</i>	<i>Bushels</i>	<i>Million bushels</i>
1926-30 ¹	100.2	24.8	2,485	41.3	28.8	1,189	11.7	22.5	263
1931-35.....	106.6	21.9	2,330	43.6	22.3	974	13.7	15.5	212
1936-40.....	94.8	24.8	2,347	39.7	26.5	1,053	13.7	17.7	243
1941-45.....	90.9	32.2	2,929	43.7	29.0	1,268	15.8	21.0	332
1946-50.....	85.8	36.1	3,098	44.1	30.4	1,339	12.1	23.2	281
1950.....	82.9	37.1	3,075	45.0	30.4	1,369	13.0	23.4	304
1951.....	83.3	35.1	2,926	41.0	31.2	1,278	10.8	23.8	257
1952.....	82.2	40.0	3,292	42.3	28.8	1,217	9.2	24.8	228
1953.....	81.6	39.3	3,210	43.2	26.7	1,153	9.6	25.7	247
1954.....	82.2	37.2	3,058	46.9	30.1	1,410	14.7	25.8	379
1955.....	81.1	39.8	3,230	47.5	31.6	1,503	16.3	24.6	401
1956.....	78.6	43.9	3,451	44.6	25.9	1,153	14.7	25.3	372

	Sorghum grains			Total four feed grains		
	Harvested for grain	Yield	Production	Acreage	Yield ²	Production
Average:	<i>Million acres</i>	<i>Bushels</i>	<i>Million bushels</i>	<i>Million acres</i>	<i>Tons</i>	<i>Million tons</i>
1926-30 ¹	3.5	12.6	44	156.7	0.62	96.1
1931-35.....	4.0	13.5	54	167.9	.52	87.4
1936-40.....	4.7	13.0	61	152.9	.59	90.1
1941-45.....	6.9	17.8	123	157.3	.72	113.7
1946-50.....	7.3	19.6	143	149.3	.80	118.9
1950.....	10.3	22.7	234	151.2	.81	121.8
1951.....	8.5	19.2	163	143.6	.79	113.1
1952.....	5.3	17.2	91	139.0	.86	119.7
1953.....	6.3	18.4	116	140.7	.84	117.5
1954.....	11.7	20.1	235	155.5	.80	123.9
1955.....	12.9	18.8	243	157.8	.83	130.9
1956.....	9.3	22.0	205	147.2	.88	129.8

¹ Harvested acreages 1926-28; planted acreages 1929-30.² Changes in yield reflect changes in relative acreage as well as changes in yield of the individual grain.³ Average for 1929 and 1930.

TABLE 22.—*Corn: Acreage planted, by regions, averages 1926-50, annual 1948-57*

[Thousands of acres]

Period	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States
Average:							
1926-30 ¹ -----	2,210	20,310	43,673	10,370	21,321	2,354	100,238
1931-35-----	2,392	21,067	44,010	11,916	24,274	2,892	106,551
1936-40-----	2,418	20,336	35,279	11,825	22,792	2,137	94,787
1941-45-----	2,394	20,162	36,215	10,422	20,045	1,708	90,946
1946-50-----	2,349	21,316	36,000	9,355	15,645	1,146	85,811
1948-----	2,379	21,934	35,386	9,297	15,441	1,085	85,522
1949-----	2,335	22,031	37,102	9,221	14,841	1,208	86,738
1950-----	2,337	20,354	33,961	9,455	15,596	1,156	82,859
1951-----	2,342	21,198	35,790	9,097	13,746	1,102	83,275
1952-----	2,377	21,354	34,967	9,272	13,266	944	82,230
1953-----	2,394	22,002	35,843	8,765	11,612	958	81,574
1954-----	2,442	22,557	35,207	8,798	12,018	1,163	82,185
1955-----	2,442	22,657	34,888	8,397	11,384	1,329	81,097
1956 ² -----	2,350	22,078	33,889	7,935	11,096	1,199	78,557
1957 ³ -----	2,2	21,490	31,529	7,535	10,324	1,259	74,410

¹ Harvested acreage 1926, 1927, and 1928; planted acreage 1929 and 1930.² Preliminary.³ Based on reports from farmers indicating their intentions about Mar. 1.

TABLE 23.—*Feed grains: Acreage harvested, yield and production, by regions, average 1949-53, annual 1954-57*

NORTH ATLANTIC

Year	Corn, all			Oats			Barley			Sorghum grain		
	Acreage harvested	Yield per acre	Production	Acreage harvested ¹	Yield per acre	Production	Acreage harvested	Yield per acre	Production	Acreage harvested	Yield per acre	Production
1949-53	1,000 acres	Bushels	1,000 bushels	1,000 acres	Bushels	1,000 bushels	1,000 acres	Bushels	1,000 bushels	1,000 acres	Bushels	1,000 bushels
1954	2,336	46.8	109,408	1,927	37.3	60,764	252	38.4	8,780			
1955	2,421	48.4	112,292	1,933	38.7	63,144	304	39.6	12,031			
1956	2,414	45.0	108,521	1,927	40.9	66,522	337	36.8	12,401			
1957 ²	2,317	53.8	124,707	1,444	41.3	59,591	315	37.9	11,946			

EAST NORTH CENTRAL

1949-53	21,240	52.3	1,111,706	10,166	40.0	406,510	339	32.9	11,145	2	23.5	47
1954	22,353	53.8	1,203,899	9,771	42.1	411,656	392	35.4	13,880	2	33.0	66
1955	22,591	54.9	1,240,533	9,853	51.1	503,594	535	34.7	18,580	2	33.0	66
1956	21,926	63.0	1,380,262	9,167	44.5	407,870	476	34.4	16,388	2	40.0	80
1957 ²												

WEST NORTH CENTRAL

1949-53	34,833	39.0	1,358,298	20,686	30.9	638,626	4,528	21.3	96,537	2,062	19.6	40,398
1954	34,301	38.1	1,310,595	22,411	32.4	713,139	5,795	22.4	129,930	4,227	16.2	68,570
1955	33,783	36.4	1,239,819	21,921	33.4	734,047	6,776	22.5	132,300	3,773	11.9	44,863
1956	31,874	41.6	1,327,212	16,849	28.8	485,669	5,685	23.2	131,637	2,876	16.4	47,267
1957 ²												

SOUTH ATLANTIC

1949-53	9,035	25.2	227,438	1,340	29.9	40,043	251	31.1	7,805	40	25.2	1,009
1954	8,437	20.7	174,925	1,820	32.7	59,601	317	35.3	11,201	89	22.8	2,030
1955	8,270	29.8	246,763	1,769	30.0	52,984	323	32.7	10,556	156	25.6	4,000
1956	7,853	31.4	246,733	1,754	36.3	63,627	341	38.0	12,952	127	24.2	3,070
1957 ²												

See footnotes, p. 74.

TABLE 23.—*Feed grains: Acreage harvested, yield and production, by regions, average 1949-53, annual 1954-57—Continued*

SOUTH CENTRAL

Year	Corn, all			Oats			Barley			Sorghum grain		
	Acreage harvested	Yield per acre	Production	Acreage harvested ¹	Yield per acre	Production	Acreage harvested	Yield per acre	Production	Acreage harvested	Yield per acre	Production
	1,000 acres	Bushels	1,000 bushels	1,000 acres	Bushels	1,000 bushels	1,000 acres	Bushels	1,000 bushels	1,000 acres	Bushels	1,000 bushels
1949-53.....	13,440	23.3	313,392	2,078	24.3	50,448	273	19.1	5,215	4,085	20.4	95,440
1954.....	11,551	18.7	216,113	3,795	28.5	108,133	690	20.9	14,433	6,455	22.2	143,011
1955.....	11,217	31.4	351,776	3,533	23.2	82,114	677	16.7	11,289	7,003	21.9	196,681
1956.....	10,833	28.0	303,491	3,128	27.4	85,698	666	20.1	13,379	5,539	24.2	134,160
1957 ²												
WESTERN												
1949-53.....	1,023	27.1	27,731	1,479	34.6	51,129	3,829	32.7	125,057	634	21.1	13,376
1954.....	1,023	34.3	35,101	1,488	36.2	53,928	5,872	33.7	197,779	929	23.3	21,618
1955.....	1,255	41.4	52,011	4,440	37.4	53,513	5,916	33.1	196,099	1,332	20.2	26,916
1956.....	1,147	44.4	50,887	1,297	38.7	50,197	5,344	34.8	186,193	805	23.5	20,488
1957 ²												

¹ Harvested for grain.² In prospect July 1.

TABLE 24.—*High-protein feeds: Quantity available for feeding, high-protein feed-consuming animal units, and quantity per animal unit, averages 1926-45, annual 1946-56*

Period ¹	Quantity available for feeding, in terms of 44 percent protein soybean meal equivalent ²						Animal units fed annually ⁴	Quantity available per animal unit
	Oilseed meal			Animal protein meals	Grain protein meals	Total		
	Soybean	Other ³	Total					
Average:	Thousand tons	Thousand tons	Thousand tons	Thousand tons	Thousand tons	Thousand tons	Million units	Pounds
1926-35 -----	148	1,724	1,872	2,333	424	4,629	85.0	109
1936-45 -----	1,856	2,070	3,926	2,481	691	7,098	96.3	147
1946 -----	3,483	1,599	5,082	2,223	966	8,271	97.4	170
1947 -----	3,180	2,209	5,389	2,301	791	8,481	92.8	183
1948 -----	3,950	2,446	6,396	2,414	792	9,602	96.3	199
1949 -----	4,336	2,584	6,920	2,456	831	10,207	99.0	206
1950 -----	5,546	2,251	7,797	2,466	1,069	11,332	101.3	224
1951 -----	5,527	2,697	8,224	2,638	817	11,679	102.0	229
1952 -----	5,455	2,624	8,079	2,657	767	11,503	100.2	230
1953 -----	4,965	2,876	7,841	2,948	826	11,615	100.2	232
1954 -----	5,428	2,381	7,809	2,684	853	11,346	101.5	224
1955 ⁵ -----	6,042	2,440	8,482	2,824	898	12,204	104.4	234
1956 ⁶ -----	7,000	2,325	9,325	2,729	865	12,919	103.9	249

¹ Years begin Oct. 1.² Converted on basis of digestible protein.³ Cottonseed, linseed, peanut, and copra meals.⁴ High-protein feed-consuming livestock. Based on animal units of grain-consuming livestock, excluding horses and mules, adjusted for importance of high-protein feeds in total concentrates fed.⁵ Preliminary.⁶ Based on indications in May 1957.

TABLE 25.—*Production of livestock products and consumption per person, averages 1926-50, annual 1951 to date*

Period	Production				Consumption per person				
	Meat		Eggs	Chicken and turkey ²	Milk	Index, all livestock products (1947-49 = 100) ³	Meat		
	Beef	Pork	Total ¹	Million pounds	Billion pounds		Beef	Pork	Total ¹
Average:	Million pounds	Million pounds	Million pounds	Million dozens	Billion pounds		Pounds	Pounds	Pounds
1926-30.....	6,209	8,550	16,276	3,511	100.2	71	52.4	67.9	132.9
1931-35.....	6,638	8,242	16,711	3,270	105.3	73	52.8	64.5	131.8
1936-40.....	7,050	8,162	17,112	3,447	107.5	76	55.9	61.5	132.0
1941-45.....	8,977	11,609	22,966	4,763	119.0	100	58.1	71.4	146.0
1946-50.....	9,571	10,541	22,262	5,158	117.0	101	64.3	70.0	148.8
1951.....	8,837	11,481	21,868	5,322	116.2	102	66.1	71.9	148.0
1952.....	9,459	11,527	22,994	5,323	115.1	110	77.5	63.5	155.3
1953.....	12,460	10,506	24,968	5,307	120.5	112	80.1	60.0	154.7
1954.....	12,983	9,870	26,304	5,422	122.3	117	82.0	66.8	162.8
1955.....	13,560	10,601	28,866	5,494	123.2	122	85.4	67.5	165.8
1956.....	14,462	11,221	28,055	5,494	123.7				

¹ Includes veal, lamb, and mutton in addition to beef and pork.² Ready-to-eat basis.³ Farm price weighted.⁴ Includes provisional estimate for turkey, not previously reported.

TABLE 26.—*Feed grains: Supply and disappearance, United States, 1926-56*
[Millions of tons]

Marketing year ¹	Supply			Imports	Total	Utilization				Ending carryover		
	Beginning carryover		Production			Exports ³	Livestock feed		Food, industry and seed			
	Under price support ²	Other					By horses and mules	By other livestock			Total	
												Total
1926		12.3	12.3	95.8	0.1	108.2	21.4	68.1	89.5	1.5	99.2	9.0
1927		9.0	9.0	98.8	.1	107.9	21.1	71.4	92.5	2.0	103.1	4.8
1928		4.8	4.8	105.7	(4)	110.5	20.9	69.7	90.6	3.3	102.8	7.7
1929		7.7	7.7	96.4	(4)	104.1	20.4	66.8	87.2	1.2	97.2	6.9
1930		6.9	6.9	86.9	.1	93.9	17.8	59.2	77.0	.6	85.9	8.0
1931		8.0	8.0	96.9	.1	105.0	16.3	69.6	85.9	.6	94.8	10.2
1932		10.2	10.2	111.2	.1	121.5	17.2	79.8	97.0	.7	106.2	15.3
1933		15.3	15.3	84.1	1.7	99.6	12.6	65.3	77.9	.4	87.3	12.3
1934	2.3	10.0	12.3	52.6	1.7	66.6	11.3	42.5	53.8	.2	63.2	3.4
1935		3.4	3.4	92.3	.8	96.5	16.7	58.1	74.8	.4	85.5	11.0
1936		11.0	11.0	99.2	3.5	104.0	9.5	50.5	60.0	.2	69.9	3.8
1937		3.8	3.8	100.1	.1	104.0	13.2	62.7	75.9	.9	89.7	14.3
1938	1.3	13.0	14.3	96.8	.1	111.2	11.2	68.7	79.7	1.6	90.5	20.7
1939	7.2	13.5	20.7	95.8	.3	116.8	10.1	72.8	82.9	1.7	94.0	22.8
1940	13.2	9.6	22.8	98.6	.3	121.7	10.6	76.8	87.4	1.0	98.6	18.5
1941	11.3	11.8	23.1	105.1	.1	128.3	10.2	86.0	96.2	.4	103.8	17.8
1942	5.5	13.0	18.5	120.8	1.6	140.9	10.6	99.3	109.9	1.0	120.7	11.6
1943	.4	17.4	17.8	112.1	2.4	132.3	10.1	91.0	107.8	1.0	113.6	14.9
1944	.2	11.4	11.6	116.7	2.2	130.5	9.3	91.0	100.3	1.5	108.9	10.9
1945	.3	14.6	14.9	113.8	.5	134.2	8.7	96.2	104.9	1.8	113.2	13.8
1946		10.9	10.9	123.0	.1	134.0	6.3	90.3	96.6	5.3	108.2	7.8
1947	.3	13.5	13.8	94.1	.1	108.0	5.7	80.0	85.7	1.5	91.2	30.4
1948		7.8	7.8	135.4	.6	143.8	5.1	98.2	103.3	4.8	120.7	28.6
1949	15.2	15.2	30.4	120.0	.8	135.2	4.4	100.0	104.4	6.5	124.5	22.1
1950	20.9	9.0	30.6	121.8	.8	133.1	3.8	102.0	105.8	4.8	122.9	22.1
1951	14.9	13.7	28.9	119.7	1.3	143.0	3.4	94.0	97.4	5.3	114.5	27.0
1952	16.6	11.4	27.0	117.5	1.7	146.7	2.9	96.2	99.1	3.8	115.0	31.7
1953	25.0	9.3	31.7	123.9	.9	156.5	2.5	97.0	99.5	5.5	117.4	39.1
1954	29.3	9.3	39.1	130.9	.8	170.8	2.4	104.4	106.8	8.1	127.5	43.3
1955	35.0	8.3	43.3	129.8	1.0	174.1	2.4	104.4	106.8	8.1	127.5	43.3
1956 ⁵												

¹ Corn and sorghum grains October-September, oats and barley July-June.

² Under loan or owned by CCC at beginning of the marketing year.

³ Includes grain equivalent of grain products exports.

⁴ Less than 50,000 tons.

⁵ Preliminary.

TABLE 27.—*Feed grains: Supply and utilization, averages 1937-41 and 1950-54, annual 1952-56*

CORN, YEAR BEGINNING OCTOBER

[Millions of bushels]

Item	Average 1937-41	Average 1950-54	1952	1953	1954	1955	1956 ¹
Supply:							
Production.....	2,576	3,112	3,292	3,219	3,058	3,230	3,451
Carryover, all positions.....	469	752	487	769	920	1,035	1,165
Imports ^{2,3}	1	1	1	1	1	1	1
Total supply.....	3,046	3,865	3,780	3,980	3,979	4,266	4,617
Distribution:							
Wet-process products ⁴	92	131	130	128	139	141	140
Dry-process products:							
Breakfast foods ⁵	8	12	12	13	13	13	13
Farm household use.....	26	9	9	7	6	5	5
Cornmeal, grits, etc. ⁶	54	67	68	65	66	65	65
Alcohol and distilled spirits ⁷	27	27	17	23	22	27	25
Seed ⁸	14	12	12	13	12	12	12
Exports ^{2,9}	50	102	140	96	92	108	130
Total nonfeed uses.....	271	360	388	345	350	371	390
Feed ⁹	2,221	2,715	2,623	2,715	2,594	2,730	2,777
Total utilization.....	2,492	3,075	3,011	3,060	2,944	3,101	3,167
Carryover at end of year.....	554	790	769	920	1,035	1,165	1,450

SORGHUM GRAIN, YEAR BEGINNING OCTOBER

Supply:							
Production.....	78	168	91	116	235	243	205
Carryover.....	(10)	27	10	7	22	75	81
Total supply.....		195	101	123	257	318	286
Distribution:							
Food and industry.....	(11)	13	4	5	8	3	7
Seed ⁸	3	2	2	2	3	3	3
Exports.....	(12)	42	10	15	48	66	60
Total nonfeed uses.....	3	57	16	22	59	77	70
Feed ⁹	75	107	78	79	123	160	146
Total utilization.....	78	164	94	101	182	237	216
Carryover at end of year.....	(10)	31	7	22	75	81	70

See footnotes at end of table, p. 79.

TABLE 27.—*Feed grains: Supply and utilization, averages 1937-41 and 1950-54, annual 1952-56—Continued*

OATS, YEAR BEGINNING JULY

[Millions of bushels]

Item	Average 1937-41	Average 1950-54	1952	1953	1954	1955	1956 ¹
Supply:							
Production.....	1,131	1,285	1,217	1,153	1,410	1,503	1,153
Carryover, all positions.....	173	249	277	249	227	303	346
Imports ^{2 13}	5	52	69	80	20	3	15
Total supply.....	1,309	1,586	1,563	1,482	1,657	1,809	1,514
Distribution:							
Breakfast foods ¹⁴	30	36	36	36	36	37	37
Seed ⁸	95	110	108	118	119	112	109
Exports ^{2 15}	3	4	1	(¹²)	13	26	25
Total nonfeed uses.....	128	150	145	154	168	175	171
Feed ⁹	987	1,168	1,169	1,101	1,186	1,288	1,118
Total utilization.....	1,115	1,318	1,314	1,255	1,354	1,463	1,289
Carryover at end of year.....	194	268	249	227	303	346	225

BARLEY, YEAR BEGINNING JULY

Supply:							
Production.....	286	283	228	247	379	401	372
Carryover, all positions.....	43	74	73	51	71	131	117
Imports ^{2 15}	3	23	25	38	24	28	25
Total supply.....	332	380	326	336	474	560	514
Distribution:							
Used in producing malt:							
For alcohol and alcoholic beverages ¹⁶	61	87	82	86	83	85	85
For other purposes ¹⁷	4	6	6	6	6	6	5
Seed ⁹	26	20	16	24	26	24	26
Exports ^{2 15}	8	34	37	19	43	103	80
Total nonfeed uses.....	99	147	141	135	158	218	196
Feed.....	180	149	134	130	185	225	203
Total utilization.....	279	296	275	265	343	443	399
Carryover at end of year.....	53	84	51	71	131	117	115

¹ Preliminary. Based on conditions in June 1957 and subject to change as additional data become available.² Compiled from reports of the Bureau of Foreign and Domestic Commerce and Bureau of Census.³ Exports, grain only; imports include grain equivalent of cornmeal, flour, and oatmeal.⁴ Starch, sirup, sugar, etc. Compiled from Price Waterhouse & Co.⁵ Estimated use in making prepared breakfast foods.⁶ Estimated quantities used in producing cornmeal, flour, hominy grits, and flakes for human food and for brewers' use. Does not include corn processed for livestock feed.⁷ Compiled from reports of the Internal Revenue Service.⁸ Based on acreage planted to following crop.⁹ Residual; includes small quantities for other uses and waste.¹⁰ Not reported prior to 1947.¹¹ Not reported prior to 1942.¹² Less than 500,000 bushels.¹³ Imports include grain equivalent of oatmeal; exports grain only.¹⁴ Used in production of oatmeal and other cereal preparations. Based on reports of the Census of Manufacturers.¹⁵ Both imports and exports include grain equivalent of malt.¹⁶ Compiled from reports of the Internal Revenue Service.¹⁷ Principally for food.

TABLE 28.—Prices received by farmers for major livestock and livestock products, average 1937-41, annual 1947 to date

Period	Meat animals, per 100 pounds				Eggs, per dozen	Poultry, per pound			Butterfat, per 100 pounds	Wholesale milk, per 100 pound	Index numbers 1910-14=100			
	Beef cattle	Calves	Lambs	Hogs		Farm chickens	Commer- cial broilers	Turkeys			Meat animals	Poultry and eggs	Dairy products	Live-stock and live-stock products
Average, 1937-41-----					<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>					
1947-----	\$7.41	\$8.71	\$8.28	\$7.59	20.1	14.5	18.6	17.3	20.1	\$1.88	121	107	123	118
1948-----	18.40	20.40	20.50	24.10	45.3	26.5	32.3	36.5	71.8	4.27	329	223	273	288
1949-----	22.20	24.40	22.80	23.10	47.2	30.1	36.0	46.8	79.9	4.88	361	242	301	315
1949-----	19.80	22.60	22.40	18.10	45.2	25.4	28.2	35.2	61.6	3.95	311	221	252	272
1950-----	23.30	26.30	25.10	18.00	36.3	22.2	27.4	32.9	62.0	3.89	340	186	249	280
1951-----	28.70	31.90	31.00	20.00	47.7	25.0	28.5	37.5	71.2	4.58	409	228	286	336
1952-----	24.30	25.80	24.30	17.80	41.6	22.1	28.8	33.6	75.0	4.85	353	206	302	306
1953-----	16.30	16.70	19.30	21.40	47.7	22.1	27.1	33.7	66.5	4.32	296	221	274	272
1954-----	16.00	16.50	19.10	21.00	38.6	16.8	23.1	28.8	58.7	3.97	292	176	252	255
1955-----	15.60	16.70	18.40	15.00	38.9	18.6	25.2	30.2	57.7	4.00	249	188	253	236
1956-----	14.90	16.00	18.50	14.40	38.7	10.0	19.6	27.2	58.6	4.13	238	177	259	230

TABLE 29.—*Feed grains: Season average prices received by farmers, average 1937-41, annual 1946 to date*¹

Crop year ²	Per bushel			Per 100 pounds				Price per 100 pounds as a percentage of corn		
	Corn	Oats	Barley	Corn	Oats	Barley	Sorghum grains	Oats	Barley	Sorghum grains
Average, 1937-41.....	\$0.588	\$0.313	\$0.448	\$1.05	\$0.978	\$0.933	\$0.889	Percent 93	Percent 89	Percent 85
1946.....	1.56	.809	1.36	2.79	2.53	2.83	2.56	91	101	92
1947.....	2.16	1.05	1.70	3.86	3.28	3.54	3.11	85	92	81
1948.....	1.30	.723	1.15	2.32	2.26	2.40	2.06	97	103	89
1949.....	1.25	.657	1.04	2.23	2.05	2.17	1.86	92	97	83
1950.....	1.53	.791	1.18	2.73	2.47	2.46	1.88	90	90	69
1951.....	1.66	.823	1.24	2.96	2.57	2.58	2.36	87	87	80
1952.....	1.53	.786	1.35	2.73	2.46	2.81	2.80	90	103	103
1953.....	1.49	.743	1.15	2.66	2.32	2.40	2.34	87	90	88
1954.....	1.43	.714	1.08	2.55	2.23	2.25	2.25	87	88	88
1955.....	1.34	.595	.917	2.39	1.86	1.91	1.75	78	80	73
1956.....	1.29	.690	.993	2.30	2.16	2.07	2.05	94	90	89

¹ Season average prices weighted by production.² Corn and sorghum grains, year beginning October. Oats and barley, year beginning July.TABLE 30.—*Index numbers of prices of specified feeds and of prices received and paid for all commodities, average 1937-41, annual 1946-56*

Period	Prices received by farmers, 1910-14=100		Prices paid by farmers				Wholesale prices 1935-39=100	
			1910-14=100		1935-39=100			
	All farm products	Feed grains	All commodities purchased ¹	Feed	Dairy ration	Poultry ration	High-protein feeds ²	Oilseed meals
Average 1937-41.....	108	92	127	104	98	98	102	101
1946.....	236	212	208	200	214	193	213	217
1947.....	276	275	240	236	254	232	254	254
1948.....	287	273	260	250	269	238	258	259
1949.....	250	176	251	206	211	192	230	219
1950.....	258	198	256	210	215	199	228	226
1951.....	302	237	282	236	246	223	246	249
1952.....	288	242	287	251	262	234	283	291
1953.....	258	213	279	227	240	214	228	232
1954.....	249	211	281	226	231	215	253	260
1955.....	236	189	281	212	217	201	209	212
1956.....	235	188	286	207	210	197	195	196

¹ Includes commodities and services, interest, taxes and wage rates.² Index of 11 major high-protein feeds, including oilseed meals, animal protein feeds and grain proteins.

TABLE 31.—*Livestock-feed price ratios: Averages 1926-50, annual 1951 to date*¹

Period	Hog corn	Beef steer corn	Eggfeed	Farm chicken- feed	Com- mercial broiler- feed	Turkey- feed	Butterfat- feed ²	Milk- feed ³
Average:								
1926-30.....	12.4	13.7	13.0	9.2	-----	-----	26.6	1.26
1931-35.....	10.6	15.4	12.5	8.5	-----	-----	22.8	1.22
1936-40.....	12.5	15.5	12.0	8.4	-----	9.2	23.6	1.25
1941-45.....	13.7	15.0	13.4	8.6	-----	10.5	25.5	1.37
1946-50.....	13.7	16.3	11.5	7.0	³ 6.0	9.4	23.4	1.27
1951.....	12.4	19.9	12.0	6.4	5.3	8.9	22.0	1.29
1952.....	11.0	18.4	10.0	5.4	5.1	8.0	22.3	1.28
1953.....	15.0	15.2	12.3	5.9	5.2	8.6	21.6	1.25
1954.....	15.0	15.4	9.4	4.7	4.3	7.9	19.8	1.19
1955.....	11.8	15.3	10.8	5.2	5.0	8.3	20.9	1.28
1956.....	11.2	15.7	10.9	4.8	4.0	8.2	21.9	1.36

¹ United States average prices received by farmers except the beef steer-corn ratio, which is computed from prices at Chicago.

² Includes an allowance for dairy production payments, October 1943-June 1946.

³ 1947-50 average.

TABLE 32.—*Feed grains: Cash receipts from sales, United States, 1946-56*

Crop year beginning—	Corn			Oats		Barley		Sorghum grain			Total cash receipts, 4 feed grains
	Quantity sold	Price, per bushel ¹	Cash receipts	Quantity sold	Price, per bushel ¹	Cash receipts	Quantity sold	Price, per bushel ¹	Cash receipts	Quantity sold	
	<i>Million bushels</i>		<i>Millions</i>	<i>Million bushels</i>		<i>Millions</i>	<i>Million bushels</i>		<i>Millions</i>	<i>Million bushels</i>	<i>Millions</i>
1946	807	\$1.53	\$1,235	367	\$0.805	\$295	153	\$1.40	\$211	66	\$1,834
1947	490	2.16	1,059	312	1.04	326	167	1.83	289	63	1,790
1948	1,034	1.28	1,328	341	.717	245	187	1.73	320	68	1,892
1949	924	1.24	1,144	276	.655	181	144	1.28	216	80	1,597
1950	789	1.52	1,202	329	.788	259	195	1.06	213	105	1,859
1951	747	1.66	1,242	307	.820	251	155	1.19	232	158	1,839
1952	1,075	1.52	1,629	202	.789	231	140	1.26	195	114	2,151
1953	1,075	1.48	1,597	208	.742	221	139	1.37	185	63	2,105
1954	1,050	1.43	1,499	387	.714	276	251	1.17	273	77	2,283
1955	1,139	1.35	1,538	393	.601	236	236	1.09	255	187	2,189
1956 ²	1,218	1.29	1,609	314	.689	217	245	.978	243	184	2,250
								1.15		155	

¹ Includes an allowance for unredemmed loans and purchase agreement deliveries valued at the average loan rate. Season average prices weighted by sales in each State.

² Advance estimates.

TABLE 33.—Percentage of the total feed fed to livestock that is derived from different sources, averages 1909-55

ALL LIVESTOCK									
[Percent]									
Period	Corn	Other grain	Commercial by-products ¹	Seeds and skim milk ²	Hay	Silage and beet pulp	Stover and straw	Pasture	Total
1909-19-----	24.1	7.1	4.6	1.9	12.5	0.9	7.9	41.0	100
1920-29-----	24.8	8.4	5.1	2.0	13.4	1.9	5.9	38.5	100
1930-39-----	24.4	9.0	6.0	2.6	13.4	2.6	5.8	33.2	100
1940-49-----	23.4	10.3	7.6	1.7	13.8	2.3	3.2	37.7	100
1950-55-----	23.2	8.9	9.8	1.1	14.8	3.3	2.4	36.5	100
DAIRY CATTLE									
1909-19-----	6.4	5.5	5.9	3.1	21.1	3.5	9.4	45.1	100
1920-29-----	7.5	6.1	6.8	2.8	23.3	6.3	5.4	41.8	100
1930-39-----	5.9	7.6	7.6	3.0	24.0	7.4	4.5	40.0	100
1940-49-----	9.6	7.6	7.0	2.0	26.5	6.3	2.0	39.0	100
1950-55-----	10.4	7.4	7.4	1.5	28.9	8.8	.8	34.8	100
BEEF CATTLE									
1909-19-----	4.1	1.2	1.3	0.5	5.8	0.6	10.8	75.7	100
1920-29-----	5.5	1.6	2.0	.6	6.9	1.2	9.4	72.8	100
1930-39-----	7.8	1.6	2.7	.9	7.5	1.6	11.4	66.5	100
1940-49-----	9.0	1.7	3.5	.5	11.0	1.5	6.6	66.2	100
1950-55-----	10.2	1.4	4.9	.2	14.8	2.1	4.6	61.8	100
SHEEP									
1909-19-----	1.9	2.2	0.9	-----	8.2	0.3	3.5	83.0	100
1920-29-----	1.4	3.0	1.1	-----	9.8	.8	2.8	81.1	100
1930-39-----	2.8	1.7	1.3	-----	9.0	1.0	3.4	80.8	100
1940-49-----	3.5	1.2	1.4	-----	11.5	.9	2.4	79.1	100
1950-55-----	3.9	1.5	1.9	-----	12.1	.9	2.2	77.5	100
HORSES AND MULES									
1909-19-----	28.2	10.7	1.9	-----	19.2	-----	12.4	27.6	100
1920-29-----	26.8	12.0	1.6	-----	22.3	-----	10.9	26.4	100
1930-39-----	24.4	9.4	.4	-----	23.0	-----	11.8	31.0	100
1940-49-----	19.0	9.8	.7	-----	24.1	-----	9.1	37.3	100
1950-55-----	16.3	8.1	1.5	-----	18.6	-----	14.2	41.3	100
HOGS									
1909-19-----	71.1	9.6	10.3	5.6	-----	-----	-----	3.4	100
1920-29-----	71.1	11.8	7.6	5.8	-----	-----	-----	3.7	100
1930-39-----	67.8	14.0	6.8	7.5	-----	-----	-----	3.9	100
1940-49-----	62.6	18.2	10.1	4.2	-----	-----	-----	4.9	100
1950-55-----	63.7	15.9	12.6	3.1	-----	-----	-----	4.7	100
POULTRY									
1909-19-----	51.4	22.3	13.2	4.5	-----	-----	-----	8.6	100
1920-29-----	50.2	22.8	16.3	3.5	-----	-----	-----	7.2	100
1930-39-----	42.5	29.1	20.3	3.6	-----	-----	-----	4.5	100
1940-49-----	40.8	30.0	24.4	1.8	-----	-----	-----	3.0	100
1950-55-----	39.6	27.2	30.5	.5	-----	-----	-----	2.2	100

¹ Grain and animal byproducts, including oilseed and alfalfa meals.² Seeds include soybeans, cottonseed, and other seeds fed as such.

TABLE 34.—*Estimated feed production per acre from alternative uses of land as shown by selected farm management studies*¹

Crop or land use	Estimated feed production per acre in total digestible nutrients					
	South Carolina, Piedmont ²	Oklahoma, Eastern Prairie ³	Pennsylvania, central ⁴	Colorado, north-eastern irrigated ⁵	Michigan, moderate productive soils ⁶	Minnesota, south-eastern ⁷
Grains:						
Corn.....	1,708	1,708	2,640	3,160	3,192	2,653
Oats.....	1,030				1,452	956
Barley.....				2,040		1,034
Grain sorghums.....		1,491				
Silage:						
Corn.....			2,800	5,610	4,800	3,287
Oats.....					3,000	
Alfalfa-brome.....					4,120	
Sudan grass.....					2,988	
Hay:						
Alfalfa.....			2,576	4,024		2,569
Alfalfa-brome ⁸					3,320	
Oats and lespedeza.....		2,000				
Tame pastures:						
Bermuda grass.....	2,825					
Bermuda grass top-seeded with crimson clover.....	3,690					
Tall fescue and ladino.....	2,500					
Rye grass and crimson clover.....	2,725					
Orchard grass and ladino (average management).....			2,352			
Orchard grass and ladino (improved management).....			3,120			
Irrigated pasture mixture.....				4,050		
Annual pastures: Vetch and rye.....		1,350				
Permanent native pastures:						
With average management.....		1,035	1,200			
With improved management.....			1,888			

¹ These estimates of feed production are based upon good-management and improved-production practices. The estimated nutrient production from pastures involves an assumption that optimum rates of stocking are maintained. Nutrients are expressed as total digestible nutrients (TDN), which may somewhat overstate the feeding value of forages in comparison with grains.

² South Carolina Agricultural Experiment Station Bull. 411, 1953.

³ Oklahoma Agricultural Experiment Station Bull. B-430, 1954.

⁴ Pennsylvania Agricultural Experiment Station Bull. 545, 1951.

⁵ Colorado Agricultural Experiment Station Bull. 437-A, 1954.

⁶ Research Problems in the Economics of Forage Production and Utilization, Michigan State College, mimeographed, 1957.

⁷ Minnesota Farm Business Notes, May 31, 1955.

⁸ Includes 576 TDN aftermath grazing.

⁹ Field-cured.



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